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ABSTRACT

The School-to-Work Opportunities Act (STWOA) of 1994 provides flexible funding and technical assistance to the education reform strategy known as the school-to-work movement, which offers a broad range of students work-based learning opportunities. In 1994, just before passage of the STWOA, the Manpower Demonstration Research Corporation illustrated the feasibility of school-to-work approaches by showcasing the "best practice" lessons from 16 pioneering study sites in 12 states. These projects were described in a document that helped in the formation of the STWOA. This followup report tells about the evolution of these 16 programs, which have grown to serve more students , expanded employers' roles and activities, improved curricula and instruction methods, added new work-based learning opportunities, branched out into new occupational areas, and served as models for program replication. The descriptions of these programs also illustrate the problems school-to-work programs face. Designated resources are constantly needed to pay for program development and operation. On-going efforts are needed to serve both high- and low-achieving students, and postsecondary institutions must be involved in building links between high schools and colleges. The programs are grouped into five programmatic approaches to school-to-work: (1) Career Academies; (2) Occupational Academic Cluster programs; (3) Restructured Vocational Education programs; (4) Tech Prep programs; and (5) Youth Apprenticeship programs. An appendix describes each of the programs in the study. (Contains 1 figure, 7 tables, and 50 references.) (SLD)

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Home-Grown Progress:

The Evolution of Innovative School-to-Work Programs

Rachel A. Pedraza
Edward Pauly
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School-to-Work Project

Home-Grown Progress:

The Evolution of Innovative School-to-Work Programs

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Edward Pauly
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Manpower Demonstration Research Corporation

September 1997

MDRC

This report was prepared as an update to the School-to-Work Project, a study by the Manpower Demonstration Research Corporation of innovative programs that help students make the transition from school to work, to post-secondary education options, and to careers. The project received support from the Ewing Marion Kauffman Foundation, The Commonwealth Fund, a private donor, Capital Markets Assurance Corporation, the Union Carbide Foundation, Inc., the Metropolitan Life Foundation, and The Travelers Foundation.

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Preface

The education reform strategy known as the school-to-work movement — or school-to-career movement — has taken hold in schools and workplaces across the United States. Given increased impetus by the School-to-Work Opportunities Act (STWOA) of 1994, which provides flexible funding and technical assistance, the movement seeks to unite communities, educators, employers, unions, and government agencies in efforts to better prepare the nation's young people for post-secondary education opportunities and productive careers in today's global economy. The movement aims to offer a broad range of students work-based learning opportunities, innovative school-based curricula, and instruction that emphasizes high academic standards. As such, school-to-work approaches — such as the drive toward smaller "schools-within-schools," creating more personalized learning environments for students and teachers, and attempting to link learning in school with learning on the job — are an integral part of economic and work-force development efforts and broader education reforms.

In 1994, just prior to the passage of the STWOA, the Manpower Demonstration Research Corporation (MDRC) illustrated the feasibility of school-to-work approaches by showcasing the "best practice" lessons from 16 pioneering case study sites in 12 states. This information, contained in the report (and, subsequently, the book) *Home-Grown Lessons: Innovative Programs Linking Work and High School*, helped inform the development of the STWOA and continues to provide guidance to educators and employers implementing and running school-to-work programs nationwide.

This new, follow-up report chronicling the evolution of these 16 programs reveals that school-to-work can be sustained and can grow over time. Since first explored in 1992–93, these programs have grown to serve more students and a broader range of them, expanded employers' roles and activities, improved curricula and instructional methods, added new work-based learning opportunities, branched out into new occupational areas, and/or served as models for replication. However, efforts to maintain and expand school-to-work programs confront a number of challenges. Designated resources are continually needed to pay for the intensive staff time required to sustain program development and operation; decisions must be made about program intensity and scale; ongoing efforts are needed to meet the challenge of serving both low- and high-achieving students; and post-secondary institutions must be involved as partners in building linkages between high schools and colleges to increase college opportunities for students. Developments in the 16 programs make it clear that major investments of time, energy, consensus-building, and, in many cases, money must be patiently applied over a period of years if real change in public education is to take place. These promising initiatives provide important information and lessons — particularly on moving school-to-work to scale, institutionalization, and the multifaceted role of employers — to assist education leaders who are now being asked to build school-to-work systems nationwide.

The 16 sites described in this report do not necessarily represent the universe of school-to-work activities now under way nationwide, nor does the study contain information on the im-

pact of such programs on student outcomes. However, MDRC's ongoing Career Academies Evaluation will provide reliable evidence on the impacts of this approach. (An early report on the Academies' effects on student outcomes such as school attendance and grades is scheduled for completion in 1997, and subsequent reports will provide information on the longer-term and post-high school effects of Career Academies.)

This study received generous financial support from the Ewing Marion Kaufmann Foundation, The Commonwealth Fund, a private donor, Capital Markets Assurance Corporation, the Union Carbide Foundation, Inc., the Metropolitan Life Foundation, and The Travelers Foundation.

We hope that this report will inform and guide policymakers, educators, employers, and local leaders associated with building and sustaining school-to-work programs in their own communities.

Judith M. Gueron
President

Acknowledgments

This update report could not have been written without the generous contributions of time and information from school-to-work program leaders, school and district staff, and employer partners across the 16 case study sites. These individuals hosted two rounds of field visits to each site in 1993, providing detailed information about their pioneering school-to-work initiatives, upon which MDRC's original school-to-work report *(Home-Grown Lessons: Innovative Programs Linking Work and High School)* and this update study are based. In 1996, staff from all 16 sites again participated in extensive telephone interviews to share with us their more recent experience in refining, expanding, and institutionalizing their programs.

In gathering information for this update study, we are particularly indebted to the following individuals: Kathy Floyd (Baltimore finance academy); Ernie Roy and Edna Malbrough (Los Angeles medical magnet); Pat Clarke (Oakland health academy); Carl Cooper, Nancy Sochat, and Jan Kehoe (Socorro health academy); Sheryl McCall and Lynn Hale (Central Point cluster program); John Polto and Ron Sollenberger (Dauphin County cluster program); Janet Warrington and Rene Leger (Portland cluster program); Maria Ferri and Adria Steinberg (Cambridge vocational restucturing); Carolyn Mason and Judy Straayer (Fort Collins restructured co-op); Danny Fahey, Mary Babb, Mendel Stewart, Johnny Wallace, and Butch Merrit (Pickens County tech prep and youth apprenticeship); Sharon Bain and Rick Adcock (Wayne Township tech prep); Lynn Peters (Fox Cities youth apprenticeship); Chris Ames (Little Rock youth apprenticeship); Wayne Rowley (Tulsa youth apprenticeship); and Marilyn Orlopp (West Bend youth apprenticeship).

In addition, individual employer partners at each of the 16 sites responded to questions over the telephone. Employers who made time to speak with MDRC interviewers include Herb Seligson (Baltimore finance academy; The Travelers Group), Sam Sacks (Los Angeles medical magnet; Drew University), Ola Sires (Oakland health academy; Kaiser Permanente), Karen Lynch (Central Point cluster program; Jewett Elementary School), Larry Doll (Central Point cluster program; Medford Computer), Don Shaw (Central Point cluster program; Automated Office Systems), Melissa Neely (Dauphin County cluster program; Harrisburg Hospital), Stephanie Oliver (Portland cluster program; the *Oregonian*), Mary Maloley (Cambridge vocational restructuring; Harvard University), Don Woebke (Fort Collins restructured co-op; Hewlett Packard), Doug Newton (Pickens County tech prep and youth apprenticeship; Ryobi American Corporation), DeWitt Fleming (Wayne Township tech prep; Modine Midwest Manufacturing Company), Bill Haas (Fox Cities youth apprenticeship; Haas Automotive), Cathy Gilmore (Little Rock youth apprenticeship), David Lynch (Little Rock youth apprenticeship; North Point Ford Dealership), Carl Gertner (Tulsa youth apprenticeship; Hilti, Inc.), and Randy Wiskirchen (West Bend youth apprenticeship; Serigraph).

MDRC's partner in the school-to-work update project, Jobs for the Future (JFF), contributed throughout the study. JFF's Hilary Kopp helped to develop the telephone interview guide, conducted phone interviews with site staff, and authored several chapters of the report, and Rich-

ard Kazis provided overall guidance and extensive comments on an early draft of the report. We are also indebted to the project's funders, listed at the front of this report, for their support, useful comments, and overall guidance on MDRC's work in the education field.

The following individuals provided thoughtful comments on the telephone interview guide and/or an early draft of the report: Thomas Bailey, Nevzer Stacey, Richard Kazis, Eilene Pederson, David Stern, Robert Glover, Pat Stone, and Mayo Tsuzuki. We would also like to thank J. D. Hoye at the National School-to-Work Office; Patricia McNeil, Assistant Secretary, Office of Vocational and Adult Education at the U.S. Department of Education; and Daniel Wiltrout at the Council of Chief State School Officers for providing useful information on the current policy context of school-to-work and states' efforts to implement school-to-work systems.

At MDRC, we received support and assistance from many people. Robert Ivry led the update project effort and, along with Jim Kemple, reviewed draft documents and the final product. Simone Andrews provided able research assistance throughout the project and took lead responsibility for developing the report's tables. Rachel Hitch produced the tables and meticulously fact-checked the text. Anne Fenton developed and monitored the project's budget. Alice Tufel carefully edited the report with guidance from Judy Greissman. The report was prepared for publication by Stephanie Cowell and Patt Pontevolpe.

The Authors

Executive Summary

In 1994, the School-to-Work Opportunities Act (STWOA) challenged states and local communities to build a nationwide system of school-to-work programs that prepare students for post-secondary education and rewarding careers. The STWOA was informed by school-to-work initiatives already under way in many localities, states, and other countries — initiatives that had been implemented in response to changes in the global economy and an increasing demand for high-skilled workers. The STWOA also had the effect of ratifying and reinforcing home-grown initiatives in the United States. These school-to-work initiatives bring together education professionals, community leaders, and employers committed to improving public education by creating opportunities for students to learn about careers through classroom instruction and to participate in work-based learning.

In seeking to build upon such activities, the STWOA established three core components for a nationwide system in which *all* students will have the opportunity to participate in (1) school-based learning about work and careers, (2) work-based learning opportunities, and (3) "connecting activities" that link experiences in schools and workplaces. The federal government also provides technical assistance and funding to help states and localities launch school-to-work initiatives. As of spring 1997, all states received planning grants to initiate school-to-work approaches, and 37 states and nearly 125 local partnerships between schools and employers are receiving competitive implementation grants, which continue to be awarded on a rolling basis. This ambitious initiative has now been taken up by schools, post-secondary institutions, employers, unions, civic groups, and other public and private sector organizations across the United States, in a richly diverse collection of locally designed responses to the STWOA.

The experiences of 16 pioneering school-to-work efforts that preceded the STWOA are a valuable source of ideas and lessons for policymakers and practitioners — and this study is part of a continuing effort by the Manpower Demonstration Research Corporation (MDRC) to identify and disseminate some of those lessons. The 16 programs featured in this report are grouped into five different programmatic approaches to school-to-work, as presented in Figure 1: Career Academies, Occupational Academic Cluster programs, Restructured Vocational Education programs, Tech Prep programs, and Youth Apprenticeship programs. Each of these approaches is described in detail in Chapter 1. Many remarkable people participated in this study; their openness and insights made it possible for us to share the lessons from their experiences. The study was funded by the Ewing Marion Kauffman Foundation, The Commonwealth Fund, The Union Carbide Foundation, Metropolitan Life Foundation, The Travelers Foundation, and a private donor. Jobs for the Future (JFF) was MDRC's partner for the project.

The principal lessons obtained from the experiences of these 16 programs (first studied by MDRC in 1992–93), based on newly updated information on the changes they have experienced through mid-1996, are presented in this Executive Summary. The evidence on expanding school-to-work is encouraging, but significant challenges remain. Of the many lessons regarding

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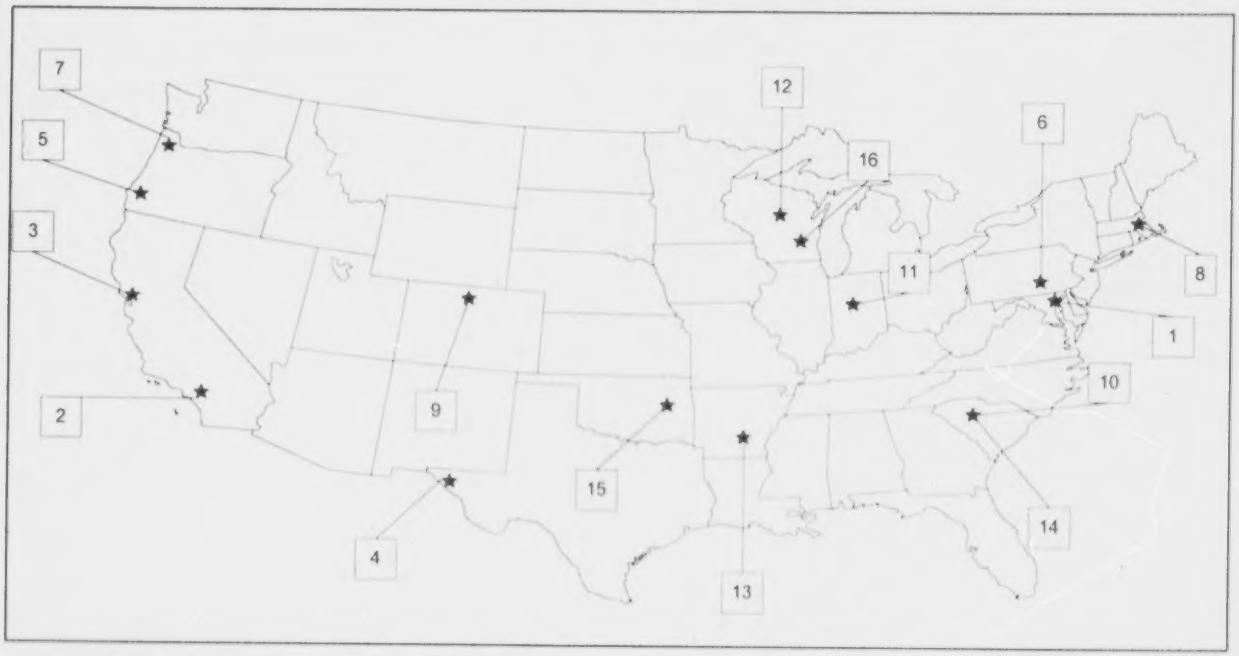
Figure 1
Locations of Participating School-to-Work Case Study Programs



Career Academies

1. Academy of Finance, Lake Clifton-Eastern High School, Baltimore, Maryland: broad preparation for varied financial occupations; related academy program in travel, tourism, and hospitality; National Academy Foundation (NAF) curriculum used in both programs.
2. King-Drew High School of Medicine and Science, Los Angeles, California: magnet school providing broad preparation for varied health occupations, scientific research, and college prep courses in areas of health and science.
3. Health and Bioscience Academy, Oakland Technical High School, Oakland, California: broad preparation for health and science occupations.
4. Health Professions Academy, Socorro High School, El Paso, Texas: broad preparation for varied health occupations.

Occupational Academic Cluster Programs

5. Crater High School, Central Point, Oregon: three schools-within-a-school, which include business, social services, and ecology clusters in mixed grade settings.
6. Dauphin County Technical School, Harrisburg, Pennsylvania: technical, service, construction, and communications/transportation clusters are offered in collaboration with vocational shops.
7. Roosevelt Renaissance 2000, Roosevelt High School, Portland, Oregon: provides six technical and service career pathways in the areas of art/communication, manufacturing, health, natural resources, business, and human services.

Restructured Vocational Education Programs

8. Rindge School of Technical Arts, Cambridge, Massachusetts: career exploration with links between vocational and academic learning and community economic development efforts. Internships in education, financial services, facilities management, and health careers/science.
9. Professional and Career Experience, Poudre R-1 School District, Fort Collins, Colorado: career exploration followed by job shadowing and internships in varied fields.

Tech Prep Programs

10. Pickens County School District, Easley, South Carolina: broad preparation for high-technology careers.
11. Ben Davis High School, Wayne Township, Indianapolis, Indiana: broad preparation for high-technology careers, which includes a "Pre-Tech" Program and optional jobs skill training.

Youth Apprenticeship Programs

12. Fox Cities Printing Youth Apprenticeship, Appleton, Wisconsin: technical and job skills training in printing, finance, insurance, auto technology/auto collison, and health.
13. Metropolitan Vocational Center, Little Rock, Arkansas: technical and job skills training in a range of occupational areas.
14. Pickens County School District, Easley, South Carolina: technical and job skills training in computer electronics, business management, industrial electricity, health occupations, machine tool technology, and graphic communications.
15. Craftsmanship 2000, Tulsa, Oklahoma: technical and job skills training in metalworking, new school-within-a-school initiatives in health, business, transportation, international studies, and telecommunications.
16. West Bend Youth Apprenticeship, West Bend, Wisconsin: technical and job skills training in printing, finance, insurance, health, and manufacturing.

the growth of school-to-work that emerge from the experiences of these 16 initiatives, those discussed below appear to have the broadest significance.

Important Progress is Under Way

School-to-work initiatives at all 16 case study sites have grown since 1993 along one or more dimensions, including increasing the number of students served and employers involved, expanding employer partner roles and activities, adding new program features, branching out into new occupational areas, and serving as models for replication or the development of related systemic reform initiatives. In particular, the 16 case study sites have progressed in the following significant ways:

- **Despite the great difficulties and barriers that affect all major educational and community innovations, the 16 pioneering school-to-work initiatives have been sustained and have grown.**

Seasoned observers of public policy have pointed out that while it is difficult to initiate a reform strategy, it is much more difficult (and far less glamorous) to sustain it, expand it to a national scale, and make it pay off. The experience in these 16 communities shows that it is feasible to sustain innovative school-to-work programs over time, to expand school-to-work to serve large numbers of students, to expand the occupational areas for which such programs prepare students, and to gain the active support of enough local employers so that work-based learning opportunities can grow. In 1992–93, no one knew whether these things could be done. Now, three years later — because of the experiences of the 16 programs in this study — we know that expanding school-to-work is feasible.

As school-to-work initiatives move from their start-up phase into greater maturity, the experiences of these 16 communities show that they can make substantial progress toward sustaining themselves as a core part of school and community life.

Overall, the experiences of the 16 pioneering initiatives support cautiously optimistic hopes for the future of school-to-work. *However, these initiatives — while illustrating a cross-section of various approaches to school-to-work — do not represent the universe of current school-to-work initiatives; the efforts studied in this report may reflect greater motivation, more staff and community commitment, and more funding than do other efforts.*

- **Because of vigorous outreach activities at many sites, sufficient employer participation has been obtained to provide participating students with work-based learning opportunities. Most early employer partners are still participating in school-to-work; more employers have been successfully recruited; and employers are participating in school-to-work through a greater variety of activities. As a result, the total number of students working with employers, across the 16 sites, has increased.**

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In the communities we studied, almost all of the students enrolled in a school-to-work initiative were able to participate in work-based learning. Few students were excluded because of a lack of employer participation. This remarkable accomplishment demonstrates that aggressive outreach to the employer community can succeed. In most of the 16 case study sites, lack of employer involvement or limited capacity for providing work-based learning slots *did not* limit program growth and expansion into new occupational areas. In fact, because more employers are now participating and most early employer partnerships have been maintained, more students are afforded the opportunity to participate in work-based learning activities, even though many individual employers generally continue to limit the number of students they can accommodate at the workplace to four or fewer students at any one time (although some employers do routinely work with more than four students).

Employers have also expanded the type of work-based learning opportunities they offer by adding job shadowing (in which students follow an employee for one or more days to learn about a specific occupation or industry), internships, work-based learning that earns school credit, and occupation-related projects with employer participation in the classroom. In many of the case study sites, as more employers have become involved, students now have several different opportunities to participate in work-based learning experiences throughout their enrollment in school-to-work.

- **These programs' experiences indicate that regular and candid reassessments of each school-to-work initiative's curriculum, methods of instruction, and work-based learning activities, followed by strong and sustained efforts to bring about needed improvements in these key areas, are a crucial responsibility of each program's leadership team, and are necessary if school-to-work is to make a difference in students' lives. In addition, experience shows that teachers in school-to-work need to participate in shared professional development efforts that enable them to collaborate with their colleagues in bringing about instructional change for their students.**

Close, ongoing monitoring of every school-to-work initiative — and continued efforts to improve core components — is essential if the program is to achieve high standards. Among key efforts to improve school-to-work are activities from which teachers can benefit, such as regular meeting time with action-focused agendas, visits to workplaces, curriculum development efforts, and other activities that challenge them to move beyond traditional instruction. Avoiding the problems of clashes between academic and vocational mindsets, professional isolation, administrative barriers to change such as scheduling conflicts and graduation requirements, and the inevitable flaws in every new program's initial plans requires vigorous involvement by teachers and school administrators.

- **Incrementalism — building on the original program components to create new ones that reflect the initiative's overall goals and vision — has been an effective strategy for expanding the number of students and em-**

ployers who participate, for adding broader and more comprehensive features to a school-to-work initiative, and for building connections to other education reforms (including systemic reforms).

Launching a new school-to-work initiative can demand an overwhelming number of tasks, including recruiting employers, designing innovative school- and work-based components, creating new ways to bring students and teachers together, and adjusting the school day to accommodate work- and school-based learning time. In tackling the task, many of the case study sites began by focusing on implementing either school- or work-based activities more strongly. Since 1992–93, many of these programs have strengthened what were initially weaker elements of their programs by improving the quality of work-based learning, developing new courses, and adding new program features. In addition, the case study sites have been able to make these improvements without diminishing the quality of their core components.

While building their original school-to-work initiatives, many of the case study sites have become models for systemic reform efforts that go far beyond their initial programs. Leaders at the 16 case study sites have played a central role in district, regional, statewide, and even national efforts to improve education, by heading up local efforts to implement school-wide reform initiatives, by making presentations to other districts and hosting numerous visits to their schools, by participating in evaluations, and by providing input to state and federal policymakers. Again, most of the case study sites started with a defined focus and target population, and, over time, have incrementally expanded their sphere of influence by sharing their experiences, expertise, and leadership to help develop and implement system-wide reforms.

Significant Challenges Remain

Fostering change in long-established school practices is difficult and slow, and efforts to sustain and expand school-to-work face a number of challenges. The 16 school-to-work initiatives in this study provide a unique preview of the issues that will likely confront the school-to-work movement in the coming years — as its focus turns from bold new beginnings to the hard work of expansion and system-building.

- **Significant trade-offs between scale and intensity appear to exist.**

The most intensive school-to-work innovations are so demanding — in terms of the new skills that students must learn, the guidance that employers must provide, and the time required of both students and employers — that it is often difficult to expand them to include large numbers of students. In particular, intensive work-based components, which must be supported by rigorously defined, complementary, school-based learning, often require that students, teachers, and employers invest significant amounts of time in learning and teaching skills for a specific occupational area. Such intensive programs, which are designed to totally replace traditional high school experience with preparation for a specific occupation, attracted fewer students than did less intensive programs. Conversely, larger programs — while offering students some work-

based learning opportunities and new school-based curricula — appear to be making more modest changes in students' day-to-day educational experiences, at least at this point in time.

However, issues of design and intensity do not necessarily present "either-or" trade-offs for school-to-work partnerships. Several of the case study sites have mixed various school-to-work approaches in designing their initiatives to include an intensive offering for the subset of students interested in acquiring job-specific skills, alongside other school-to-work options focused on broad-based career preparation and exposure to the workplace geared toward a majority of students.

- **Despite early fears that school-to-work might be viewed as serving primarily low-achieving students, the instructional approaches used at the 16 case study sites have demonstrated broad appeal and have in many instances attracted more high-achieving students over time. Thus, efforts are needed to assure that lower-achieving students continue to have access to school-to-work innovations if school-to-work is to serve all students.**

Continuing hard work is required to make sure that school-to-work serves both higher-achieving and lower-achieving students, and both female and male students. Attention to recruitment strategies and methods, program content and focus, and classroom practices can help to ensure that school-to-work continues to serve a broad mix of students.

- **Explicitly designated resources continue to be needed to pay for the intensive staff time, employer outreach, professional development, and curricular change required by school-to-work.**

School-to-work requires intensive staff resources for outreach to employers, curriculum development in schools and workplaces, and expansion efforts. The changes sought by the school-to-work movement are difficult ones that are not achieved quickly. District administrators, program staff, and teachers must have adequate time, over an extended period, to devote to these activities. Also, consistent staffing can facilitate program development, whereas high turnover may cause setbacks.

Maintaining the participation of employers who provide work-based learning positions and other important school-to-work activities, as well as continuing to expand the rolls of participating employers, will require continuing outreach efforts and staff time. The hard work of sustaining and expanding school-to-work cannot be accomplished "on the cheap" or exclusively through the use of time donated by regular school staff. Some programs now pay for school-to-work staff through regular school budgets ("hard money"), while others continue to rely in part on special demonstration funding and grants.

- **While school-to-work efforts have emphasized preparing students to access a wide range of post-secondary education options, building linkages**

between secondary and post-secondary institutions has been a lower priority. Students do not often take advantage of the formal linkages that programs have developed — for example, articulation agreements (which allow students to earn college credit in specific areas of study for high school course work and/or work-based learning experiences) and post-secondary components within school-to-work. Informal linkages, such as getting more students to take college prerequisite courses and increased college admissions counseling, appear to provide important supports for helping young people connect to college.

Articulation agreements between schools and community colleges are widespread; however, few students in the 16 programs we studied use them to earn significant post-secondary credits or even to influence their post-secondary enrollment decisions. The programs' experiences suggest that most schools, employers, and post-secondary institutions have generally placed a low priority on building attractive formal linkages to facilitate the transition from high school to a post-secondary institution or on adopting school-to-work innovations at the post-secondary level. On a more positive note, several programs have demonstrated the feasibility of having students take post-secondary courses while they are still in high school, as part of their school-to-work program.

Many of the case study sites have developed informal, supportive strategies — to help prepare students for post-secondary learning and to help students make choices beyond high school. Many programs provide extra counseling to help students explore college options, make sure they earn the high school credits needed to gain admission to post-secondary institutions, complete college and financial aid applications, and, in general, become familiar and comfortable with a wide range of post–high school options through shared activities with nearby community colleges, occasions to mix with college students, and opportunities to take college-level classes (on a high school or college campus).

Implications for Systemic Reform

School-to-work provides a flexible framework within which broad-based education reform — suited to serving all students and matching local resources and needs — can take place. The 16 pioneering school-to-work programs examined here provide a "bottom-up" perspective on the evolving relationship between school-to-work approaches and other education reform efforts. Four broad empirical findings stand out:

- **School-to-work's hands-on instructional methods demonstrate the kinds of instructional change sought by systemic reform advocates and other education reformers.**

School-to-work activities that change the way students and teachers work in the classroom and provide students with opportunities to learn at a workplace typically involve hands-on

applications and project-based work. However, school-to-work's more experimental instructional techniques have not sacrificed rigor or core academic classes, and may, in fact, raise academic expectations for all students.

At several of the 16 case study sites, school-to-work approaches to learning have been adopted school-wide in an effort to change pedagogy, upgrade curricula, and raise academic standards for all students. At other sites, school-to-work leaders have helped to launch new reform initiatives that build from their original programs and from successful efforts to change classroom activities and incorporate learning at work into the educational experiments of students and teachers.

- **School-wide education reforms have been implemented in 5 of the 16 school-to-work programs, demonstrating that school-to-work can be the basis for a school-wide reform process.**

These efforts have contributed varying but often substantial progress in reforming curricula, somewhat less progress in reforming pedagogy, and progress at just a few sites in changing assessments or building performance-based outcome goals and skill standards. Some of the 16 programs have placed more emphasis on initiating and scaling up school-to-work than on operating it as a key part of systemic school reform; other places have built systemic reform agendas around the original school-to-work programs. However, program experience across the 16 sites suggests that the goals and methods of school-to-work and systemic reform are very similar, holding out the promise of closer ties in the future — perhaps after systemic reform has become more widespread.

- **Some form of performance standards or skills certificates have been tried in less than half of the communities examined here. Yet, the limited base of experiences indicates that these reforms can be implemented as part of school-to-work.**

Skills certificates or their equivalent are used to document the occupation-related skills of school-to-work graduates in 7 of the 16 programs, and performance standards are being put in place throughout Dauphin County's cluster program. Occupation-related skills standards are more prevalent in the programs that emphasize technical training, and have less frequently been part of the other programs. More and broader support for skills standards may be required before they are likely to be widely accepted; while such standards fit well with the goals of many school-to-work programs, other priorities often take precedence — leaving the development of skills standards as a longer-term (and still largely unfulfilled) goal. In several cases, local programs appear to be waiting for larger entities (such as states, trade associations, and so forth) to develop widely recognized (portable) skills standards that could be further adapted to local circumstances and needs.

- **It appears that local programs can benefit substantially from state and federal assistance — and "support from above" from regional consortia and other partnerships — in a number of areas.**

In continuing to grow and become a larger part of system-wide reform efforts, local school-to-work initiatives are likely to benefit from regional, state, and federal assistance in building post-secondary connections (for example, through regional articulation agreements and adapting college entrance requirements to fit new school-to-work credentials earned by students), developing portable credentials, providing staff training and curriculum development assistance, coordinating employer education and outreach campaigns, creating networks of practitioners, linking school-to-work with other school reform efforts, and continuing to contribute financial assistance.

School-to-Work Is Growing, But Not Yet Grown

A final lesson that emerges clearly from the experiences of people in the 16 communities is that *it is crucial for policymakers, practitioners, and the public to set realistic expectations for school-to-work*. These school-to-work initiatives teach all of us to be cautious in the goals and timetables that we set for school-to-work in general. The STWOA has set an extremely ambitious agenda for change, and there are no guarantees that it will be achieved. Indeed, daunting challenges remain for every school-to-work program. Consequently, it is valuable to have the counsel of experienced program operators when making decisions about allocating the scarce resources of time and energy on which the expansion of school-to-work will depend. It is also important to heed their warning that major investments — of time, energy, consensus-building, and, in many cases, money — must be patiently applied over a period of years if real change is to occur.

Asking for too much, too soon is a recipe for disappointment. The timetable for building school-to-work across the nation must be measured over a decade or more, with opportunities for revising those efforts that, perhaps inevitably, will fall short of what the pioneers have proven to be attainable. Expectations should be realistic, even as people strive to build on the accomplishments of cutting-edge school-to-work programs like the ones described here.

It remains to be seen whether the school-to-work programs in this study and similar programs will be able to expand into local and state school-to-work systems that can serve large numbers of high school students nationwide. However, the evolution of these pioneering programs should provide encouragement for educators, employers, and community leaders who see school-to-work programs as an important method for improving young people's preparation for post-secondary education, training, and rewarding careers, and who are working to scale up school-to-work nationwide.

Chapter 1

Introduction: Learning from Leading-Edge American School-to-Work Initiatives

An education reform effort of great ambition is now under way in schools, workplaces, and communities across the United States. Educators, employers, unions, and government agencies at the local, state, and federal levels are working together to change the way that the nation's young people prepare for productive and satisfying adult lives in the workplace. The school-to-work movement (also known as the school-to-career movement) aims to draw together the public schools, institutes of higher education, and the world of work to create opportunities for students to learn about careers, to participate in work-based learning experiences, and to learn in an environment that encourages high academic standards.

The School-to-Work Opportunities Act (STWOA), which was passed by Congress and signed into law in 1994, has spurred discussion and action in every state. With support from the STWOA, from many governors and state education departments, and from school and community leaders in many localities, the school-to-work movement is spreading rapidly. While the early architects of school-to-work initiatives in the United States turned to European models for suggestions and guidance, many promising school-to-work initiatives have begun to take hold in this country that can provide useful information and lessons to assist the leaders who are being asked to build the school-to-work movement.

In 1992–93, in an effort to learn from the experiences of innovative school-to-work initiatives, the Manpower Demonstration Research Corporation (MDRC) visited and studied 16 of the nation's most promising school-to-work initiatives. The resulting report, *Home-Grown Lessons: Innovative Programs Linking Work and High School* (Pauly, Kopp, and Haimson, 1994) described the lessons that people in the 16 communities had learned about school-to-work.[1] The report focused in particular on the initiatives' planning and start-up processes, their recruiting and selection of students, their classroom methods, their employer roles and work-based learning, and their implementation lessons. However, the report had a significant limitation. Most of the initiatives it examined were too new to provide information on the long-term challenges of growth — expanding to achieve scale locally within their own communities and nationwide, and sustaining schools' and employers' involvement over time as a central part of schools' and communities' priorities.

This report continues the story of the 16 school-to-work initiatives described in *Home-Grown Lessons*, using their experiences from 1993 through 1996 to shed light on the challenges of expansion and growth. It looks at key topics with which the school-to-work movement is now grappling through the lens provided by the experiences of these 16 study sites. Detailed information

[1] In 1995, *Home-Grown Lessons* was published as a book by Jossey-Bass. A companion report, *Learning Through Work: Designing and Implementing Quality Worksite Learning for High School Students*, was prepared by Jobs for the Future and published by MDRC in 1994.

was gathered from schools and employers in an effort to examine the following questions:

- Is school-to-work growing in these communities?
- How can school-to-work expand to serve large numbers of students?
- How can the school-to-work movement be sustained in high schools, avoiding the marginalization that has undermined many previous innovations?
- How can the school-to-work movement build and sustain employers' roles as providers of work-based learning experiences and meaningful guidance for both students and teachers?

The 16 communities that shared their experiences with MDRC for this report are the source of concrete, descriptive information that answers these crucial first-order questions: Is it feasible for educators and employers to change their long-established practices to build school-to-work? Can school-to-work activities in schools and workplaces be sustained and expanded? The experiences of these 16 study sites highlight the implementation challenges that school-to-work faces as it develops. Simply put, this descriptive information shows what school-to-work can accomplish as it expands. This report focuses on providing "proof of what is possible" (rather than on, say, measuring program impacts). It presents the information that is needed to establish realistic benchmarks for policymakers and practitioners as they build the school-to-work initiatives of the future.

The Policy Context for This Study

With the passage of the STWOA and the creation of the National School-to-Work Opportunities Office in 1994, the federal government sought to encourage state and local efforts to erect a school-to-work system. Rather than establishing a specific program with federal mandates, the STWOA provides a flexible framework for states and communities to create education systems that serve the needs of all students, match local resources and needs, and are integrated with economic and work-force development efforts. The STWOA established three central components for that system: All students are to have the opportunity to participate in (1) school-based learning about work and careers, (2) work-based learning experiences, and (3) connecting activities that link students' experiences in school with those in the workplace. The STWOA also requires that broad-based partnerships be formed among schools, businesses, and other stakeholders at the state and local levels to facilitate the creation of school-to-work systems.

The STWOA links school-to-work approaches with other federal education reform strategies (for example, Goals 2000 efforts to improve students' academic achievements and to establish a system of voluntary occupational skill standards; Carl Perkins funding for innovative approaches to occupation-based instruction; Title I, the largest federal funding source for improving education for low-income students) and with local-level efforts to improve public education by allowing and encouraging local adaptations and flexibility in designing and implementing school-to-work initia-

tives. The federal government offers funding through competitive grants to support the development and implementation of statewide school-to-work plans, and requires that most of the grant funds be sent by the states directly to local communities. As of spring 1997, all states received planning grants to initiate school-to-work approaches, and 37 states and nearly 125 local partnerships are receiving competitive implementation grants, which continue to be awarded on a rolling basis. The STWOA sunsets in the year 2001.

States and localities have responded to this federal encouragement, and they have built on the widely varied approaches to school-to-work that they had begun prior to the STWOA's passage. Diversity reigns. In some communities, vocational education programs have taken on the school-to-work mission, altering their existing activities in ways that are sometimes dramatic and sometimes modest. In other places, school-to-work is reshaping instruction across the curriculum — from English and mathematics to elective courses to elementary instruction. In many communities, employers are taking on new educational roles by creating rich work-based learning curricula, inviting teachers into the workplace to learn how high-tech production is changing the nature of work, and serving on governing boards that select the industry focus of future school-to-work initiatives and sharpen existing efforts. At the state and local levels, school-to-work has a variety of meanings and a variety of leadership structures.

Educational leaders and experts voice a broad range of approaches to the issues that loom largest for the school-to-work movement. While some activists seek to build school-to-work initiatives that are essentially independent of other education reforms, this view is not held by proponents of "systemic" reform. Individuals who view school-to-work approaches as consistent with — and as a vehicle for achieving — broader, system-wide reform have often expressed views about school-to-work that include the following points:

- In order to produce real improvement in students' preparation for higher education and for the workplace, school-to-work — which provides examples of the power and potential of new approaches to improving student learning environments — should aim for *whole-school* change in curriculum, pedagogy, assessments, and the involvement of employers and parents.

- Maximizing the gains from school-to-work depends on the creation of *performance standards* tied to students' schoolwork and work-based learning activities. These performance standards would be used to provide a transcript for higher education institutions and employers that reports on each student's academic knowledge and mastery of employment-related skills. These skill standards should be designed by nationwide teams of experts and adopted by the states.

- Reflecting the rising skill levels demanded by high-tech workplaces, school-to-work should be designed to *serve all students*, with new instructional methods used to enable students with a wide range of achievement levels to work together in de-tracked classes.

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- The future of school-to-work is directly tied to the success of broader *systemic school reforms*. Systemic reformers argue that unless systemic reforms succeed, and school-to-work becomes an integral part of achieving system-wide education reform, the school-to-work initiatives will ultimately become marginalized. At the same time, expanding school-to-work approaches can show the way to making systemic reforms successful.

While these propositions are supported by many systemic reformers and many school-to-work leaders, they are not universally held. Moreover, the question of whether the experiences of leading school-to-work initiatives in local communities are consistent with these propositions is an empirical one; this report provides new evidence on that question. The 16 school-to-work initiatives discussed in this report speak to the challenges of systemic change with information on the ground-level experiences of people who are working to change schools and workplaces. Thus, they provide a distinctive, "bottom-up" perspective on the themes of systemic change.

An Overview of This Report

This report avoids repeating the topics and findings presented in *Home-Grown Lessons: Innovative Programs Linking Work and High School*, MDRC's 1994 study of school-to-work (Pauly, Kopp, and Haimson, 1994). That volume focused on the start-up and early experiences of a group of highly promising initiatives. The current report highlights issues related to scaling up and institutionalizing school-to-work — a central concern of policymakers and practitioners as they make the transition from their first, tentative school-to-work initiatives to the broad approaches that are intended to bridge the way to the future of school-to-work.

The remainder of this chapter outlines the data collection strategy used to gather information for this report, describes the 16 innovative initiatives on which the report is based, and briefly summarizes the main lessons from MDRC's first report on these initiatives. Chapter 2 examines whether and how the initiatives have grown since 1993. Increases or decreases in the number of students and employers who participate, the number of occupational fields covered by the initiatives, and the scope of the school-to-work activities are presented, along with a discussion of the factors affecting these changes. Chapter 3 assesses the initiatives' efforts to be sustained over time and to strengthen their relationship to their surrounding schools and communities. It also discusses their lessons regarding smoothing the institutionalization process in other communities. The chapter concludes with a brief look at how the initiatives' development, maturation, and growth have affected students' and teachers' classroom experiences.

Chapter 4 analyzes the changes in employers' participation in the 16 school-to-work initiatives, and the reasons for those changes, and Chapter 5 describes the challenges of sustaining high-quality work-based learning and the responses that employers and school staff have devised to meet those challenges. The linkages between school-to-work and post-secondary institutions are then considered along with the reasons for the difficulty in building linkages that produce concrete benefits for students, and the apparent success of informal efforts to link high school students with col-

leges. The report concludes with chapter 7, which looks at the support and resources that the initiatives received from state and federal agencies, what may happen when these resources are used up, and the implications of state and federal policies for school-to-work.

Finally, the appendix contains more detailed descriptive information about the 16 school-to-work initiatives on which this report is based, and about how they have changed since 1993.

Limitations of This Report

The initiatives described in this report are not statistically representative of the school-to-work activities now operating in the United States. We explicitly sought out initiatives that would enable us to answer key questions about the feasibility of making major changes in traditional high school and job training practices. Therefore, we chose ambitious efforts whose main features may still be relatively uncommon. These 16 initiatives provide revealing evidence on the challenges of scaling up leading-edge school-to-work ideas.

Another limitation is that it is not possible to assess reliably and fully the effectiveness of the initiatives in this study. Most of the initiatives studied have not systematically collected information on students' graduation rates, post-secondary enrollment rates, and other outcomes. Other studies, particularly the Career Academies Demonstration and Evaluation (see Kemple and Rock, 1996), have been specifically designed to provide highly reliable evidence on school-to-work's impacts on students' school performance. *Home-Grown Lessons* (Pauly, Kopp, and Haimson, 1994) summarized the available (but limited) information on the outcomes of the initiatives discussed here. As noted previously, this report demonstrates what is feasible and possible in school-to-work by documenting events in 16 leading initiatives and identifying significant challenges they have faced.

Because the initiatives we studied were created before a national school-to-work system was on the horizon, there may be some important differences between these efforts and those undertaken more recently. The initiatives described here may reflect more deeply rooted motivations to support new practices, and stronger support for school-to-work, than the average school-to-work effort that has begun since the passage of the STWOA. In this sense, these 16 initiatives may represent a very optimistic picture of school-to-work. In addition, as school-to-work becomes more widespread, the incentives and disincentives facing schools, employers, and students may change. For example, the costs of expanding school-to-work activities may be reduced when technical assistance becomes more widely available. And if school-to-work's reputation flourishes, young people will have a strong incentive to enroll, making expansion easier.

Finally, this report deliberately avoids repeating the analyses and findings of MDRC's 1994 report on these initiatives.

Data Collection Strategy and the 16 Initiatives on Which This Study Is Based

For MDRC's 1994 report, we set out to identify and study a diverse group of school-to-work reforms that represent the range of innovative school-to-work approaches found in the United States today. (We found these initiatives by reviewing the literature and seeking referrals from a wide variety of experts and officials.) We selected 16 initiatives with the following characteristics:

- They enrolled students starting at least two years before their scheduled high school graduation.
- They provided both high school instruction and work-based experience, and used the combined efforts of schools and employers.
- They differed substantially from most U.S. high school education in content and instructional methods.
- They served a broad range of students, including both disadvantaged/low-achieving and non-disadvantaged students.
- They had enough operational experience to provide start-up and implementation lessons for others. (Initiatives were excluded if they did not have students enrolled by fall 1992.)

We visited the sites of the 16 initiatives twice over the course of two years (1992 and 1993), for a total of four to six days each. Lengthy, structured interview guides were used to collect comparable information from program directors, employers, leaders of business intermediary organizations, school and district administrators, teachers, and students across all 16 programs. Our findings were published in 1994 (Pauly, Kopp, and Haimson, 1994).

Late in 1995, we asked the directors of the 16 initiatives if they and their colleagues would consent to a series of telephone interviews with us, so we could find out what they had learned since 1993. We were gratified when all 16 directors agreed to participate in this effort. We spoke with school staff and employers from all 16 initiatives. Our telephone interviews averaged approximately two hours each, and two to five individuals from each site were interviewed. For each initiative, we interviewed people with a variety of positions and perspectives, including district staff, program coordinators and teachers, employers, and post-secondary education administrators. Since the telephone interviews built on the base of understanding developed through earlier, in-person, intensive data collection efforts, we were able to collect a wealth of detailed information on program development and evolution.

The 16 initiatives are located in 12 states. They represent a wide range — but not an all-inclusive one — of school-to-work approaches. Five major school-to-work approaches are found among these communities (see Pauly, Kopp, and Haimson, 1994, for a more detailed discussion):

Career academies. Each academy is a school-within-a-school that takes approximately 50 entering students a year and provides them with a three- or four-year course of study, integrating their academic learning with the study of an industry (such as health occupations or the financial services industries) and the careers of the people who work in it. Students in an academy are grouped together for many of their high school courses and may stay with a small group of academy teachers for several years. The academic curriculum draws from the academy's occupational field. Instructional techniques include hands-on and team projects. Local employers provide mentors and summer internships to introduce students to the academy's field. Some academies seek college-bound high school students, while others target a wide range of students, including some who are at risk of school failure.

Occupational-academic clusters. Cluster initiatives typically are large-scale efforts to offer most — if not all — of the students in a high school a choice among several career pathways, each one based on a sequence of related courses tied to a cluster of occupations (such as environment-related industries, service industries, or manufacturing and engineering occupations). Students are usually exposed to a wide variety of careers before choosing an occupational cluster, and they may switch clusters in the course of their high school years. Each cluster offers occupation-related courses; students receive training in broad, work-related skills after taking introductory career-exploration courses. Academic and occupational instruction are integrated, and applied learning techniques are sometimes used. Work-based experiences enable students to explore potential careers. Students may take several classes in their cluster each year, so the clusters resemble schools-within-a-school (although the large size of the student clusters may diminish this effect).

Restructured vocational education. The job skills training and school-supervised work experience elements of traditional vocational education programs are reshaped by providing earlier and broader opportunities to learn about varied careers, more opportunities for career exploration through job shadowing (in which students follow an employee through a typical work day or complete short stays in several departments within a large organization) and visits to workplaces, structured reflection on students' workplace experiences, and closer linkages between students' occupational and academic courses. The goals of this approach are to include a larger and more diverse group of students in vocational activities, to make career exploration a central part of their education, and to prepare them for a wide range of career opportunities.

Tech prep initiatives. Tech prep upgrades the general academic track and vocational high school curricula to emphasize technology-related instruction in science, math, and other courses; coursework includes hands-on applications of workplace problems. Tech prep aims to prepare students for post-secondary technical training programs by aligning their high school courses with community college requirements; students can receive credit toward an associate's degree based on their tech prep work. Because it connects the last two years of high school with two-year community college programs, tech prep is often called "2 + 2." Increasingly, tech prep programs may offer students opportunities to explore the workplace through job shadowing, cooperative education classes, or internships.

Youth apprenticeship. Youth apprenticeship uses the workplace as a learning environment to provide students with competencies in technical skills and related math, science, communication,

and problem-solving skills. Students "learn by doing" in paid employment and training with an expert adult mentor and supervisor who work closely with them on job-related and general employment-related skills. Classroom vocational instruction and related courses that integrate academic and vocational learning are part of youth apprenticeships, and most initiatives link secondary and post-secondary institutions to provide this instruction. Qualified students receive a recognized occupational credential upon graduation.

These broad approaches frequently overlap in practice, and they can be implemented in a wide variety of ways. Consequently, knowing which broad school-to-work approach is being used does not shed any light on how a particular initiative works; more detailed information is needed. The principal characteristics of the 16 initiatives in this report are given in Table 1.1. For each initiative, the table presents the name used in the report (see the appendix for each program's full name), the grade levels of the students it serves, its main school and workplace components, and the number of students who participated during the 1995–96 school year. The table demonstrates that these 16 initiatives are quite diverse in their approaches, methods, and size.

A Brief Summary of the Home-Grown Lessons *Findings*

Because this report builds on the foundation of MDRC's 1994 report, a summary of that report's findings is useful in setting the stage for the information that follows. Table 1.2 presents the 10 principal conclusions of that study. The evidence supporting this necessarily brief summary can be found in *Home-Grown Lessons: Innovative Programs Linking Work and High School* (Pauly, Kopp, and Haimson, 1994).

Since *Home-Grown Lessons* was published, important evidence on the school-to-work movement has been reported by several distinguished researchers. Interested readers should consult, in particular, the following sources: Kopp and Kazis, 1995; Stern, 1991; and Kemple and Rock, 1996.

Table 1.1

Characteristics of School-to-Work Programs (1995–96)

Program and Location	Grades Served	Key School Features	Workplace Components	Number of Students Participating
Career Academies				
Baltimore finance academy, Baltimore, Md.	9–12	School-within-a-school; four-period day. Continued efforts to integrate course content with the occupational theme. Dedicated team of academic and occupational teachers, housed in a separate wing of the school, to teach all academy students.	Job shadowing, mentoring, field trips, and guest speakers throughout, and internships during the summer after grade 11. Teachers also participate in internships during the summer so they are better equipped to teach occupation-related topics in the classroom.	250
Los Angeles medical magnet, Los Angeles, Calif.	10–12	City-wide magnet school; college prep courses with health and science themes. Building a new facility to expand the student body from 220 to 1,700, including grade 9.	Placements with health care providers and research organizations for observation and internships. Students on site three hours per week in grade 10, and five hours per week in grades 11 and 12. Students rotate through several positions.	220
Oakland health academy, Oakland, Calif.	9/10–12	School-within-a-school with science, English, social studies, and occupational courses thematically linked to health and bioscience careers. To accommodate student's elective choices, the academy offers three sections of most classes and hopes to add Spanish to its block of classes next year. The academy helped start the Health Education Center and clinic on campus.	Industry mentors in grade 10. Students are placed in an internship during the summer after grade 11. Grade 12 students have the option of continuing summer employment or enrolling in an occupation-related class and must complete a senior project.	270

(continued)

Table 1.1 (continued, 2 of 7)

Program and Location	Grades Served	Key School Features	Workplace Components	Number of Students Participating
Socorro health academy, El Paso, Tex.	9–12	School-within-a-school; integration of academic and vocational curricula around health themes in blocked classes. Student leadership activities through Health Occupation Students of America membership. Post-secondary articulation.	Full-year grade 11 job shadowing. Grade 12 completes research projects or enrolls in half-day co-op positions. "Mixing and matching" in order to facilitate dialogue between different grade levels about their work experiences.	270
Occupational-Academic Cluster Programs				
Central Point cluster program, Central Point, Oreg.	10–11–12	Three schools-within-a-school (business, social services, and ecology) plus one school-within-a-school (the Youth Transition Program) to address the needs of students with mild learning and physical disabilities. The classes, which are considered "mixed-grade," are held four days a week. New school-within-a-school in humanities and physical education may be added.	Job shadowing internships one morning a week; group work-based projects. Four hundred local employers involved. Goal is to create awareness of jobs and work skills rather than specific skill training. Students are unpaid, but receive high school credit.	259
Dauphin County cluster program, Harrisburg, Pa.	9–12	Occupational clusters in grades 10–12 resemble schools-within-a-school tied to vocational shops. Academic classes incorporate occupational examples. Most students now accepted through a grade 9 school-within-a-school career exploration program. School working toward replacing Carnegie units with performance based outcomes.	Internship and job shadowing opportunities for students in grades 10–12. Growing number of grade 12 students participating in co-op placements. Employers also meet with teachers and provide industry exposure to school staff.	840

(continued)

Table 1.1 (continued, 3 of 7)

Program and Location	Grades Served	Key School Features	Workplace Components	Number of Students Participating
Portland cluster program, Portland, Oreg.	9–12	School-wide reform with six occupational pathways in the areas of arts/communication, business and management, health services, human services, natural resource systems, and manufacturing and engineering technology with occupation-specific courses, application-based lessons, and some integration of academic instruction with occupational themes in grades 10–12. The pathways are geared toward anticipated career opportunities for the twenty-first century. Career exploration and decision-making course in grade 9. Career resource center developed.	Job-shadowing opportunities for all students in grades 9 and 10 (approximately 700 students per year since 1995). Half-day, 6–8-week internships available for growing number of students in grades 11 and 12.	1,286
Restructured Vocational Education Programs				
Cambridge vocational restructuring, Cambridge, Mass.	9–12	Have moved away from traditional curriculum and instruction to create courses that combine subject areas and apply course content to work and/or community situations. Integrated academic and education programs emphasizing interdisciplinary, project-based learning for students in grades 9 and 10. Students in grades 11 and 12 select an internship program with integrated academics, a community service program with integrated academics, or a vocational shop concentration.	Job shadowing for grade 10 students. Year-long, half-day internships (formerly called youth apprenticeships) in four occupational areas: health careers/science program, financial services program, Harvard University facilities management program, Lesley College education program. Some school-based enterprises in connection with vocational shops.	44/200[a]

(continued)

Table 1.1 (continued, 4 of 7)

Program and Location	Grades Served	Key School Features	Workplace Components	Number of Students Participating
Fort Collins restructured co-op, Fort Collins, Colo.	10–12	All students required to take a semester-long introductory career exploration class (Critical Skills course). Planned projects include expanding career exploration to K–12 and developing training opportunities in specific areas.	After completing critical skills course, grade 10 students typically participate in volunteer service learning options, while students in grades 11 and 12 participate in those options plus internship, paid work experience, and apprenticeship.	1,659
Tech Prep Programs				
Pickens County Tech Prep, Easley, S.C.	9–12	Applied academic courses available in all high schools within the district in math, science, English, and social studies. Industry-based examples and career exploration emphasized during 90-minute class periods. Grade 10 exploratory technical/vocational classes added at district's Career Center. Under state mandate, general education track eliminated with class entering in 1995–96, and all math, English, and science teachers are trained in applied teaching techniques. Articulation agreements with local technical college for over 50 courses.	State legislation now requires that all students have the opportunity for some work-based experience (including job shadowing, business mentor, service learning, co-op, and youth apprenticeship). Job shadowing, service learning, co-op, and Career Day opportunities are available for some students, and opportunities are growing.	3,000

(continued)

Table 1.1 (continued, 5 of 7)

Program and Location	Grades Served	Key School Features	Workplace Components	Number of Students Participating
Wayne Township Tech Prep, Indianapolis, Ind.	10–12	Teachers work with the same group of students for entire school year, forming student-teacher teams. Fixed sequence of courses in English, math, science, manufacturing, technology, and computers. Application-based lessons, teamwork, and competency-based assessment stressed. "Pre-Tech Program" started in order to prepare incoming students before they enter the core tech prep curriculum. Post-secondary articulation agreements.	Grade 12 internships primarily include technical jobs or jobs where specific competencies are being used; co-op placements also an option. Possibility of exposing students to work-based learning experience earlier in their high school career, to better guide their school and career choices, is a future consideration.	364
Youth Apprenticeships				
Fox Cities youth apprenticeship, Appleton, Wis.	11–12	Unique three-day work/two-day school schedule. Competency-based instruction at community college. Printing, finance, insurance, auto technology/auto collision, and health services are the available concentrations. Course work integrated with work-related examples. Post-secondary, individualized "transition" curriculum developed that allows printing students to earn an associate's degree in one year. Planned expansion of newly opened Career Center targeting 12–21-year-olds.	Exposure to varied skills in each occupational area; state-developed curricula used in technical classroom and work-based instruction. Students at workplaces three days a week under guidance of a trained mentor. New youth internship program instituted in order to develop less intensive work-based opportunities for more students.	48

(continued)

Table 1.1 (continued, 6 of 7)

Program and Location	Grades Served	Key School Features	Workplace Components	Number of Students Participating
Little Rock youth apprenticeship, Little Rock, Ark.	11–12	All academic classes are taken at the student's host school. Training in a technical area through classes at the vocational center, focused on culinary arts, welding, computer-aided design, auto mechanics, and auto body. Articulation agreements with post-secondary training options.	Work-based component varies by industry, yet most students work up to 20 hours a week. The main goal is to train students based on industry's need. Workplace-readiness class offered.	25
Pickens County youth apprenticeship, Easley, S.C.	12–post-secondary	Applied academics in high school; technical instruction at vocational center; computer-assisted modules. Youth apprenticeship option now offered in auto mechanics, electronics, business management, industrial electricity, health occupations, machine tool technician, and graphic communications. Program continues in post-secondary years with articulation credits for high school occupational course work and work-based learning, and post-secondary tuition reimbursement by many employers.	Work-based instruction in specialized competencies designed to augment the academic and technical learning experience. Twenty hours per week are devoted to work and training. Mentors are provided.	29[b]

(continued)

Table 1.1 (continued, 7 of 7)

Program and Location	Grades Served	Key School Features	Workplace Components	Number of Students Participating
Tulsa youth apprenticeship, Tulsa, Okla.	11–post-secondary	Metalworking youth apprenticeship: academic subjects taught at area high school; technical subjects taught at vocational center and workplaces. Grade 13 developed to continue technical training. Articulation agreements with junior college. New school-within-a-school programs in health, business, and transportation under way; future programs planned in international studies and telecommunications.	Work-based activities apply skills taught in the classroom and develop firm-specific skills. Work-based learning takes place during the summer after the eleventh and twelfth grades and increases each year. Job shadowing and mentoring are included as part of work experience.	143[c]
West Bend youth apprenticeship, West Bend, Wis.	11–12	Academic and technical instruction for half-day at-home high school in printing, finance, insurance, health, and manufacturing, with competency-based curriculum and assessment and integrated academic and vocational instruction. Dual credit for local technical college for some courses. County-wide "Career Infonet" system under development to provide easy access to career exploration resources for all students. Health program may shift to more school-based instruction.	Exposure to varied skills in each occupational area. State-developed curriculum used in technical classroom and work-based instruction. Students at workplaces half-day, every day, under guidance of a trained mentor. Major emphasis is on skills training and broad exposure to a range of jobs.	33

SOURCE: MDRC telephone interviews.

NOTES: [a] Forty-four students participate in youth apprenticeship programs; 200 students enrolled in the Rindge School of Technical Arts participate in integrated and service learning opportunities.

[b] Includes 14 twelfth grade apprentices, and 15 post-secondary apprentices.

[c] Includes students participating in metalworking youth apprenticeship program (33), as well as in new programs in health, business, and transportation.

Table 1.2

Principal Conclusions from *Home-Grown Lessons*

Community	School	Work
The programs were customized to meet local circumstances and have adapted over time, fostering local creativity and ownership.	Programs can both increase opportunities to attend college and other post-secondary education options, and can improve preparation for work.	Investment capital is needed to seed the development of school-to-work systems. Lead teachers must have paid time to make employer connections and develop new learning opportunities.
Programs can serve a broad cross-section of students (including low-achieving students from low-income families) through wide recruiting and outreach, while maintaining rigor and quality. Efforts to include a wide range of students can pay off.	Programs can lead to students taking more math and science classes, achieving higher standards, and being more engaged in school.	Business intermediaries have been effective in recruiting companies to provide work-based learning opportunities, but thus far business involvement has been limited, with relatively few employers offering more than three or four internship positions for school to-work programs. Employers and business groups are often the best recruiters of other firms.
Effective marketing to parents and students is essential, and must include clear and accurate information on high standards and opportunities to attend college.	Programs should start no later than the first year of high school to reach students before they become disengaged from school, and should move from career exploration into work-related instruction and work-based learning. School-to-work can be a lever for school restructuring and the creation of significant school-wide reforms, including schools-within-a-school and career clusters, which can build smaller, more supportive personalized learning environments.	Programs should promote activities that bridge the gap between school and employers, including teacher visits to workplaces, career exploration, work-readiness workshops, and internships for teachers with companies during the summer.

SOURCE: Edward Pauly, Hilary Kopp, and Joshua Haimson, *Home-Grown Lessons: Innovative Programs Linking Work and High School* (New York: MDRC, 1994).

Chapter 2

A Time of Growth: New Evidence on Scaling Up

The period from 1992–93 through 1995–96 has been a time of growth for all 16 programs. Program expansion has taken many forms: Most programs serve more students and include more employers; many have expanded into new occupational areas; new program features have been added as the programs have been fine-tuned and have matured; and program models have been replicated and/or provided the foundation for new school reform efforts. The principal conclusions of this chapter are:

- Scaling up school-to-work initiatives is possible. Program growth occurs in many ways: Nearly all programs have increased the number of participating students and employers, and further developed and enhanced their programs to become more comprehensive. While growth has been challenging to achieve, the programs did not encounter a consistent set of insurmountable obstacles. In particular, employer participation has not been the barrier to growth that many feared.

- The collective experience of the programs studied suggests that there are some trade-offs between intensity — in terms of the extent to which the program changes participating students' day-to-day educational experiences — and the scale of school-to-work initiatives. By and large, the more intensive programs have had more difficulty expanding.

- These early school-to-work programs have demonstrated the appeal and the potential power of instructional approaches that are consistent with systemic reform efforts. Several of the programs have had a significant influence on the educational experience of students beyond their program "walls," either through replication of the program or through broader application of their unique approaches to instruction.

- While the 16 programs continue to serve a broad range of students, many report that they are attracting more high-achieving students over time. This trend suggests that school-to-work instructional approaches have broad appeal, and that efforts need to be made to assure that lower-achieving students continue to be able to access school-to-work innovations.

In 1992–93, many of the 16 programs included in this study were relatively new and some — particularly the youth apprenticeship programs — operated on a very small scale. From the perspective of participating school districts, programs need to have an impact on a significant number of students in order to justify the additional staff costs for coordinating the program, developing business partnerships, and overseeing work-based learning activities and investments in the creation of new curricula and staff development. Thus, growth in program size and reach is critical to the sustainability of these programs. Many of the 16 programs have faced this challenge by expanding

the numbers of students they serve and by influencing how the school and district approach education reform. The expansion and growing institutionalization of these programs demonstrates the viability of the school-to-work approach and its attractiveness to students and employers. In addition, the programs' efforts and accomplishments appear to be quite compatible with many of the themes of systemic school reform.

This chapter describes in detail program growth that has occurred at the 16 case study sites since 1992–93, explores trade-offs in program design and intensity faced by many of the case study sites, and summarizes the connection between these initiatives and broader school reform efforts. The chapter concludes with a brief discussion of changes in the types of students served by the case study sites.

Program Growth Is Possible and Multi-Dimensional

The experience of these pioneer programs demonstrates the feasibility of scaling up school-to-work initiatives over time, and reveals that program growth occurs in many ways. Most programs have expanded the number of students they serve since 1992–93. As shown in Table 2.1, 14 of the 16 programs were serving more students in 1995–96 than they were three years earlier. Most notable has been the expansion of the Fort Collins restructured co-op program from 550 students to 1,659 students enrolled in the newly required Professional and Community Experience (PaCE) Program's Critical Skills course and about 1,000 students placed in work-based learning experiences. The Portland cluster program has successfully added a grade of students each year since they started with 275 freshmen in 1992–93; the program now serves all 1,286 students in the school. The Wayne Township tech prep program has grown from an enrollment of 89 students to 364.

Clearly, these initiatives — some of which have grown to include the entire population of the school or schools being served — have achieved significant scale. Other approaches have experienced more limited growth, yet have increased the number of students able to experience school-to-work. This growth has occurred both directly by increasing participation within the original program, and indirectly by modeling possible approaches to school reform. For example, the youth apprenticeship programs have experienced among the largest percentage increase in size, yet they have remained small in scale. Individual career academy programs have shown the least growth in a conscious effort to retain the benefits of a small learning community. However, they have spurred the development of new academies in other occupational areas.

Employer participation has also grown, both in numbers participating and in the range of activities in which they participate. As a group, the programs have been very successful in maintaining the support of their original employer partners and recruiting new ones to participate in a wider range of work-based learning opportunities. Growth in the number of participating students and employers has often been connected to expansion into new occupational areas (see Table 2.1). Such expansion enables the programs to tap new sectors of employers and offer students a wider

Table 2.1

Scale and Expansion of School-to-Work Programs

Program and Location	Industry Focus: Initial	Industry Focus: Additional	Number of Students: 1992-1993	Number of Students: 1995-1996
Career Academies				
Baltimore finance academy	Finance	Law-related school-within-a-school linked to academy; travel and tourism academy developed in another school	200	250
Los Angeles medical magnet	Health	Same as initial	220	220
Oakland health academy	Health	Additional academies developed in host school and other district high schools	175	270
Socorro health academy	Health	Same as initial	200	256
Occupational-Academic Cluster Programs				
Central Point	Business, social services, and ecology	Same plus Youth Transition Program; humanities and physical education school-within-a-school may be added	220	259
Dauphin County	Four occupational clusters: construction, technical, communication and transportation, service	Same as initial	800	840
Portland	Six career pathways: arts/communication, business and management, health services, human services, natural resource systems, manufacturing, and engineering technology	Trade/tourism combined with information systems and processing to create a new business management pathway; arts and communication pathway added	275	1,286
Restructured Vocational Education				
Cambridge vocational restructuring[a]	Education; Polaroid plant services division[b]	Health, financial services, facilities management	250	200

(continued)

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Table 2.1 (continued, 2 of 2)

Program and Location	Industry Focus		Number of Students	
	Initial	Additional	1992-1993	1995-1996
Fort Collins restructured co-op	Career development training/vocational in multiple areas	Same as initial	550	1,659
Tech Prep Programs				
Pickens County	Multiple	Multiple	1,833	3,000
Wayne Township	Multiple	Multiple	89	364
Youth Apprenticeship Programs				
Fox Cities	Printing	Health, finance, insurance,[c] auto tech, and auto collision	7	48
Little Rock	HVAC,[d] health	Culinary arts, welding, computer-aided design, auto mechanics, auto body	23	25
Pickens County	Electronics	Auto mechanics, business management,[e] industrial electricity, health, machine tool tech, graphic communications	4	29
Tulsa	Metalworking	Original program expanded into machine maintenance and welding; new programs developed in health, business, and transportation	16	143
West Bend	Printing	Health, finance, insurance,[c] manufacturing	12	33

SOURCE: MDRC telephone interviews.

NOTES: [a]Industry focus applies to the youth apprenticeship programs only.

[b]Education internship option still available; Polaroid no longer involved due to relocation.

[c]Fox Cities and West Bend sites are dropping their insurance programs in 1997 due to lack of employer and student interest.

[d]HVAC = heating, ventilation, and air conditioning. Youth apprenticeship programs do not exist in HVAC or health at this time. A health program is likely to be reinstated.

[e]To be replaced by a finance academy.

range of career options. Expansion into new occupational areas has occurred in two ways. In several of the youth apprenticeship programs (such as those in Fox Cities, West Bend, and Cambridge), the program model has been replicated in new occupational areas so that a set of parallel programs, each offering similar youth apprenticeship experiences but in different occupational areas, are created under one larger umbrella. Typically, these programs share some coordination staff and core academic courses, but each program operates independently. In other places, expansion into new occupational areas has occurred outside of the initial program and either involved replication of the program model elsewhere in the school or district (as in Oakland and Baltimore) or the development of new school-to-work models centered around additional occupational areas (as in Tulsa).

Incrementalism Can Be Successful

The evolution of the programs' components and services demonstrates that incrementalism can be a successful implementation strategy. Overall, the experience of these early pioneers demonstrates that school-to-work programs can become more well-rounded and comprehensive over time.

Beginning a school-to-work initiative can be an overwhelming undertaking that requires the recruitment of employers; identification and definition of work-based learning opportunities; changes in curriculum and pedagogy; creation of new ways to bring together students, teachers, and employers; and negotiations about block scheduling, work-based learning time, and teacher planning time. It seems common for programs to start by focusing on the development of either the work side or the school side of the initiative. For example, models that are more school-based and focused on school reform — such as career academies and occupational-academic cluster programs — tend to concentrate initially on changes in curriculum, instructional approaches, and integration of academic and occupational themes, while the development of structured work-based learning opportunities is put on the "back burner." Youth apprenticeship programs, which are often driven by employer interest, tend to focus initially on creating well-defined learning experiences at the workplace, with efforts to develop integrated classroom-based curricula being a lower priority.

As discussed further in Chapter 3, several of the 16 programs have taken steps to develop the weaker elements of their programs and/or added new program features to address identified needs. These efforts to improve and expand specific program elements do not appear to have diminished other components or the program overall. Program enhancements that have been implemented at some sites include improving the quality of learning experiences at the worksite, developing a progression of work-based learning opportunities, and developing new and/or revised courses that incorporate occupational and interdisciplinary themes and use hands-on, project-based learning techniques. The programs' collective experience suggests that there is no trade-off between adding features and maintaining the core of the program. Programs can become more comprehensive without compromising the quality of their core components.

Expanding and Sustaining Initiatives Requires Hard Work

While the experiences of the 16 programs demonstrate the feasibility of scaling up school-to-work initiatives, it also reveals that sustained implementation requires hard work. This is particularly true for those initiatives expanding their reach into new occupational areas, since such ex-

pansion requires the development of new employer (and often post-secondary) relationships and curricula. In all of the programs, school staff continue to invest in building and sustaining support for their initiative within the schools and districts they operate and among the students, parents, and employers with whom they are partners and whom they serve.

All these efforts are staff-intensive. As when *Home-Grown Lessons* was written, the key role played by a full-time or nearly full-time program coordinator has remained critical to achieving growth in multiple dimensions. Expansion into new occupational areas has in some cases been accompanied by the addition of more coordination staff to support the growing number of participating students and employers. Many programs, such as the Portland and Central Point cluster programs, now have full-time business partnership liaisons/recruiters to recruit numerous employers and maintain their participation. Inside the schools, active administrative leadership remains essential to addressing the scheduling issues that continue to challenge school-to-work programs' efforts to build schools-within-schools (smaller, more personalized learning environments created by scheduling groups of students to take several classes together each year with the same group of teachers), create interdisciplinary courses, and establish time for work-based learning. The programs' experiences suggest that even at a more mature stage, school-to-work innovations often require an ongoing investment of resources beyond the average cost per student so that coordination staff can continue to initiate further program development and maintain the partnerships supporting the program.

No Consistent Set of Factors Appears to Hinder Growth

The growth experiences of these varied programs reveals a capacity to overcome potential barriers. We did not find any single set of limiting factors that hinders expansion across the board. Rather, the specific issues with which sites grappled concerning the number of students served or the intensity of the program experience are influenced by program design, setting, and content.

Although many argued that employers had few incentives to participate in the ongoing education of young people, we did not find that employer availability was an across-the-board limiting factor in growing school-to-work programs. Certainly, some sites have had difficulty securing the more intensive work-based learning positions in some sectors, and many programs have had to recruit numerous employers to get a sufficient number of work-based learning slots. However, while employer capacity has constrained program expansion in a few instances, employers have not been found to be the major barrier in expanding school-to-work in general. More often, it's a combination of factors that can slow growth, highlighting the importance of developing strong buy-in among school administrators, teachers, and employers, and the importance of developing opportunities that are attractive to students. These issues are discussed further in the balance of this report.

Trade-Offs in Program Development and Expansion

When shaping a school-to-work initiative, program designers face many choices, including:

- Industry focus — one or multiple, which one(s)?

- Grade levels served — how many and which ones should be included, and should the program be formally extended into the post-secondary years?

- Scope of initiative — is it intended to be part of a larger school-wide reform effort to change the educational experience of all students (or a large subset), or is it intended to have an impact on a small number of students?

- Intensity of work-based learning experiences — how much time will students spend in work-based learning, and to what extent will this activity take them out of traditional class time?

- Level of specialized training — will the program become more occupationally specialized over time (for instance, focusing on specific job skills within a field), or remain focused on broad career preparation within one or more occupational areas (preparing for work in, for example, a health-related profession).

All of these choices have significant implications for the types of implementation challenges and issues that program operators will face in starting and sustaining a school-to-work initiative. Different school-to-work program designs change students' day-to-day educational experiences, compared with the traditional high school environment, to varying degrees. Some require a higher level of commitment — both to the program and to a specific occupational area — from participating students (and participating employers) than do others.

The collective experience of the 16 programs suggests that there are trade-offs between the intensity and scale of the program experience that were not evident in the early 1990s. Specifically, youth apprenticeship programs that require students to make a significant commitment to an occupational area (or even to a specific job) at an early age, and replace traditional high school education with a great deal of technical training, applied academics, and work-based learning, have remained small in scale. At the same time, initiatives that have been designed to serve large numbers of students typically make more modest changes in students' day-to-day educational experience. They may add career exploration, occupation-related courses, and opportunities for short-term, work-based learning experiences (relative to multi-year apprenticeship opportunities), but they do not require students to invest significant time in learning skills for a specific occupational area. For most participating students, much of the school day may be as it was before the innovation was put into place.

Dilemmas of Intensive Programs

In a recently completed assessment of Wisconsin's youth apprenticeship program, Terry Orr raises the dilemmas of "high-end" intensive programs that require substantial employer involvement but have limited opportunity for expansion, high costs, and a target population in the solid middle range of students. While participating students like the program and feel they are benefiting from it and employers like the students and hire many of them, the costs are high, the numbers are small, and the potential for expansion in each industry is severely limited (Orr, 1997). The issues raised by Orr — and echoed in our conversations with site staff — are evident when comparing the growth experiences of the youth apprenticeship programs with those of other models.

The youth apprenticeship models typically offer the most in-depth work-based learning experiences: Students are placed in structured experiences at the worksite for many hours per week (often 20 hours or more) for more than one year. To reinforce and accommodate this time at the worksite, students' classroom instruction is usually taken up with required courses and technical instruction related to the work experience. In fact, in order to provide needed course work within a schedule that accommodates many hours at the worksite, youth apprenticeship programs often use a full- or half-day "pull-out" approach in which participating students from several schools or districts are brought together to a single location (such as a community college or regional vocational school) for instruction with designated teachers. This is the model for all but one of the youth apprenticeship programs in this study. (Students at West Bend continue to take classes at the high school, but leave the campus for half to a third of the day to participate in work-based learning activities.)

It has been a challenge to recruit employers who are willing and able to provide these intensive work-based learning experiences. However, youth apprenticeship program staff report that limited student interest is often as big an issue as (if not a bigger one than) finding employers willing to provide these types of experiences. (Most staff believe they could develop more work-based learning slots if they had more interested and qualified students.) Limited student response seems to be due to some combination of the high level of commitment to a specific occupational area and the overall time required by these programs, and the way in which program services are delivered. Several program directors identified the "pull-out" approach as constraining student interest because it requires students to leave their home high school (often after the sophomore year), and many students (and their parents) did not want to lose out on the high school experience, including social life, extracurricular activities, elective class options, and team sports. While the pull-out approach is likely an issue for many students, even those youth apprenticeship programs that enable students to be in their home high schools for half a day experience similar difficulties in recruiting and retaining students. For example, both the West Bend and Pickens County youth apprenticeship programs have remained relatively small in size even though they have half-day work components that enable students to stay in their home high schools for part of each day.

A few of the youth apprenticeship programs are in the process of making changes in the hope of attracting more students:

- The Tulsa youth apprenticeship program has reduced the duration of the program from four to three years because many students did not want to make a four-year commitment; has moved academic classes from the regional vocational school to a high school within the district that offers tech prep courses; and, to ease the burden on participating employers, has drastically reduced employers' per-student financial contribution. The program hopes to recruit most of its students from the high school, where students will take academic classes for half a day. (Technical courses are still provided at the regional vocational center.) As discussed below, Tulsa's newer school-to-work initiatives in other occupational areas will not use the youth apprenticeship model.

- In the Fox Cities area, the continued small size of the youth apprenticeship program has been disappointing to supporters, and there is concern about continued

high costs. A youth internship program that will provide a range of less intensive work-based experiences is being developed in an effort to reach more students. In addition, new scheduling options are being investigated for the youth apprenticeship program to find a strategy for having regular high school teachers (who are already on the school's payroll) teach the apprentices — rather than buying the time of technical college instructors whose schedules fit better with the apprentices' current school schedule (three days at work and two days at school).

Despite the design issues facing youth apprenticeship programs and their relative-small size, the continued use of this approach in the five youth apprenticeship sites, and expansion into new occupational areas across all five sites, indicates that the youth apprenticeship model is contributing to the development and expansion of school-to-work. Particularly when offered as one, highly specialized option for students interested in a particular field, alongside other school-to-work opportunities, youth apprenticeship serves as a valuable component within a larger school-to-work system.

A Large-Scale Focus Can Mean Less Change in Students' Educational Experience

On the flip side of the choices facing the most intensive school-to-work approaches, it appears that the larger programs are making more modest changes in students' day-to-day educational experience, at least at this point.[1] Initiatives such as the Portland cluster program, which started as a school-wide restructuring effort, have had to develop a wide range of curricular changes and work-based learning opportunities in order to serve all students. Given that they are working with more than 1,200 students over four grade levels, staff took a phased-in approach and created new courses a grade-level at a time. On the work side, they started with short-term job-shadowing experiences and have just begun to develop short-term internship experiences. While the scope and magnitude of the changes that have been made within the high school are impressive, the intensity of the school-to-work "treatment" from each individual student's perspective is moderate for the majority of students. By the time they graduate, seniors will have experienced the following over a four-year period: an introductory freshman course on careers, three (and in some cases five) career pathway–specific courses, and some English and possibly social studies courses integrated with career-pathway themes. In addition, they will have had two half-day job-shadowing experiences and, in most cases, one or two 6–8-week internships (a half day each week). While the environment of the school has been energized by the reform effort, students' classroom experiences outside of the additions made by the school-to-work initiative currently remain largely that of a traditional high school.

The Fort Collins restructured co-op program is another example of an initiative that has successfully reached a large number of students. The program has opened work-based learning opportunities to all students in the school district, and places many of them. While the scope of the program is impressive, the changes made in each student's educational experience are modest. All

[1]The Dauphin County cluster program is an exception to this observation. However, since this program is a reformed comprehensive vocational high school, students have chosen a different educational experience than their peers in regular comprehensive high schools just by enrolling in the school (even without its school-to-work innovations).

high school students in the Poudre School District R-1 are now required to take the program's semester-long introductory career exploration class, and students who perform satisfactorily are eligible to participate in a range of work experience options. Students may initially job shadow in grade 10 and then move into community service and/or internships/jobs in grades 11 and 12. Students may engage in several semester- to year-long work-based learning opportunities during their final two years of high school. Students in a work experience position are required to take a course related to the type of work they are doing and participate in a weekly seminar to discuss workplace issues. While students now have the opportunity to earn credit for core requirements from their work experience, their educational experiences within the classroom are typically not changed by their work-based learning.

As these larger-scale initiatives continue to develop, they may very well change more of students' daily educational experiences. Additional curricular changes to integrate disciplines, to consistently utilize hands-on learning techniques, and to emphasize the integration of work-based learning could lead to a very different educational experience for most students. However, these initiatives are not designed to replace the high school experience with preparation for a specific occupational area. The youth apprenticeship programs that do replace the high school experience in that way appear to require too significant a commitment by participating students and employers to operate on a large scale.

However, as noted above, issues of design and intensity do not necessarily present "either-or" trade-offs for school-to-work partnerships. In fact, several of the case study sites have begun and appear likely to continue to use a mix-and-match approach to designing the specific components of their unique school-to-work initiatives. Often, this approach may include an intensive offering for the subset of students interested in acquiring job-specific skills, along with other school-to-work options focused on broad-based career preparation and exposure to work-based learning for a majority of students. This mixture of school-to-work options has already begun to some extent in Tulsa (youth apprenticeship in metalworking, and more general school-based options in other occupational areas), in Pickens County (youth apprenticeship in several areas, and applied tech prep classes and less intensive work-based learning opportunities for all students), in Cambridge (internship opportunities in several areas, and applied, integrated learning opportunities in several "academic" classes open to all students), and in Fort Collins (limited, job-specific internship and apprenticeship opportunities, and broad career-preparation and work-based learning for all students).

Influencing the Educational Experience of Growing Numbers of Students: Connections to Broader Reform

While some of the programs studied were at the center of their school's restructuring efforts in 1992–93, emphasis on system-wide change has intensified across the sites as districts seek to respond to the federal School-to-Work Opportunities Act, Goals 2000, state school-to-work legislation, standards-driven education reform efforts, and local education reform initiatives (for example, school choice and charter programs). Many of the programs in this study have played an important role in the growing emphasis on the widespread reform of public education within their local communities. By demonstrating the power and promise of new educational approaches, several of the

programs have had a significant influence on the educational experience of students beyond their program "walls."

The 16 case study sites provide several examples of how school-to-work initiatives — those initially developed in response to individual interests and opportunities (rather than as part of larger system-wide reform efforts) and relatively self-contained (both in terms of students served and school staff involved) — have helped to shape larger education reform efforts and thus influenced the educational experiences of students who were not formally "enrolled" in the original programs. For example, many of these programs have made impressive strides toward implementing major changes in curriculum, pedagogy, and assessment. In so doing, they have achieved a degree of success with heterogeneously grouped classes that has attracted the interest of the principal and other faculty members — and, in some schools, imitation of the school-to-work instructional methods (such as project-based assignments, hands-on activities, cooperative learning methods) that enable both higher-achieving and lower-achieving students to be challenged and to learn in shared classrooms. Several of these programs are largely teacher-driven, demonstrating the benefits of site-based management approaches. The positive response of students and teachers to school-within-a-school learning environments, applied learning techniques, interdisciplinary instruction, and the use of the world outside the school as a learning environment has led the districts within which these programs operate to replicate the programs and/or expand the use of their innovative educational approaches to reach a growing number of students.

Several programs that started as relatively contained initiatives have become central to efforts to change pedagogy and improve the connection between school and the world of work for large numbers of students. Notably, the two restructured vocational education programs included in the study have expanded their reach to all students. The restructured co-op program in Fort Collins has expanded both horizontally and vertically. As mentioned earlier, the program's career exploration course is now required for all high school students. This has led to greater numbers of students participating in a range of work-based learning activities as all students spend a semester thinking about career options and the value of work-based learning experiences in terms of résumé building and career exposure, and as the number of students successfully completing work-based learning experiences grows. The program is also now being expanded to provide career awareness activities for grades K–6 and career exploration projects for middle-school students. Similarly, the instructional innovations pioneered within the Cambridge vocational education program are increasingly being adapted for implementation school-wide. Growing numbers of students are now benefiting from hands-on learning that connects academic instruction to real-world applications. For example, a new community service program — Cambridge Service Corps — has been developed and is open to all eleventh and twelfth grade students at the Rindge School of Technical Arts. The course integrates community problem-solving with social studies, language arts, and technical arts. In addition, based on positive experience with final projects completed by students within the youth apprenticeship programs, senior projects are being piloted throughout the school.

The career academy programs in Oakland and Baltimore have played a key role in the expansion of the academy approach within their districts. In Oakland, the health academy has served as a model for the development of additional academies throughout the district (currently totaling 13). Their success with at-risk students in a difficult urban school environment has spurred efforts to create schools-within-a-school for all students in their host high school, and eventually for eve-

ryone in the whole district (starting at the elementary level). In Baltimore, the leadership of the finance academy has been instrumental in getting the host high school to consider the creation of multiple academies and in launching a second academy program (Academy of Travel and Tourism) in another Baltimore City high school. They have also been involved in efforts to launch an Academy umbrella organization to provide curriculum support and centralize employer recruitment.

While the youth apprenticeship programs have remained relatively small in scale, most have played a key role in "jump-starting" broader school-to-work efforts that are bringing educational innovations to greater numbers of students. For example, the partnership between the Tulsa Chamber of Commerce and the school system that was initially formed to support the development of a youth apprenticeship program in metalworking has continued, with the two partners developing different program models in new occupational areas. New school-to-work initiatives focused on health, business, and transportation are under way, with additional programs focused on international studies and telecommunications in development. (In addition, the Tulsa Chamber of Commerce — working in conjunction with the juvenile justice system — has also been instrumental in launching related new initiatives for out-of-school youth.) The West Bend youth apprenticeship program has been expanded to a county-wide level, with the West Bend program serving students from other districts and helping other schools develop their own youth apprenticeship programs. In addition, because the youth apprenticeship program was the first school-to-work effort in place in its host school, it has helped to increase people's interest in implementing new curricula and instructional techniques to help young people develop informed career interests and a sense of direction.

The youth apprenticeship programs also provide a track record of experience with skill standards to guide both work-based and classroom-based technical instruction and to set clear benchmarks for students' skill attainment. The development of such standards has helped to create meaningful learning experiences at the workplace, integrating school- and work-based instruction, and ensuring that students are appropriately trained for their specific occupational areas. However, the development of academic and skill standards at the state and national levels is not, at this point, a driving force in the expansion of these 16 programs or in the broader efforts they have influenced. This lack of connection — at least at this relatively early stage of the school-to-work movement — could be due to several factors. First, some states are still developing standards, and local districts typically opt to wait and see what the final decisions are before making changes to achieve an undefined goal. Additionally, many existing state requirements emphasize basic academic skills, and an understanding of how school-to-work instructional approaches can help young people strengthen their basic skills is not always obvious to those unfamiliar with school-to-work. The basic skills emphasis can often result in district administrators moving in directions — such as establishing requirements for classroom-based academic courses and limiting flexibility in creating integrated curricula — that make it more difficult to implement school-to-work innovations.

These examples demonstrate that school-to-work is capable of contributing in significant ways to the systemic school reform agenda. They also suggest that systemic school reform cannot be achieved solely on the coattails of school-to-work. Earning the support of faculty members and parents who are skeptical of innovative pedagogy and assessments, performance standards, and detracking is likely to require more energy than the school-to-work movement can yet muster.

Changes in Students Served as the Programs Grow

As was the case in 1992–93, the 16 programs studied continue to serve a broad range of students. The fear of many that school-to-work would be seen as a vehicle for lower-achieving, non-college-bound students has not been realized. If anything, the collective experience of these programs suggests that a greater number of higher-achieving students have been attracted to school-to-work innovations over time. It appears that — at least across the 16 case study sites — school-to-work instructional approaches have broad appeal and are responsive to students with different needs.

Greater Numbers of Higher-Achieving Students Attracted to Programs

Although systematic information on student achievement levels was not collected during the telephone interviews, several broad conclusions about the type of students served by the 16 case study sites are evident from what we learned during the update project. First, while selection criteria (where they exist) have not been changed, over half of the programs reported that they have attracted a greater number of higher-achieving students as time has gone on. In many cases, program staff attribute this trend to a growing positive reputation and the fact that the program is now more of a known entity. For example, both tech prep programs reported that they are seeing more four-year-college-bound students taking tech prep courses as the applied courses have demonstrated their academic rigor and students have come to appreciate the applied approach. (In fact, several sites report that some students will reportedly take a tech prep course that repeats a college-prep-level course they have already taken, to improve their skills.) The Pickens County tech prep program has fostered a larger, more academically capable pool of students who participate in vocational education and apply for the youth apprenticeship program. In fact, increased interest in technical careers, driven by tech prep and schedule changes that make it easier to accommodate vocational courses, has led to a major increase in the district's vocational education program. Enrollment at the district's vocational center grew from 350 in 1991 to 800 by the 1995–96 school year. These examples indicate that school-to-work may be gaining in acceptance for larger numbers of students, rather than becoming stigmatized as a mere outgrowth of vocational education.

Some programs have used the pool of stronger applicants to make the program more selective. In the Pickens County youth apprenticeship program, as in some others, a larger pool has meant that competition is stiffer and that some of the lower-achieving students who were served in earlier years are now not being served. Staff from the Pickens County program and Baltimore career academy indicated an interest in becoming more selective to address concerns about students dropping out of the programs. Other programs have made concerted efforts to ensure that the program remains open and accessible to lower-achieving students. (See Wayne Township, Oakland, Pickens County, and Central Point examples, below.)

The entry points into the program can also significantly influence the mix of students served. For example, the Dauphin County cluster program now accepts students only through its expanded ninth grade program. This system allows the high school program to recruit students straight out of middle school, circumventing the perception that it is taking away good students

from other high schools or getting behavior problems "dumped" on it.[2] This change in entry point from both grades 9 and 10 to grade 9 has largely been responsible for shifting the school's population upward from the lower 30 percent to the lower 50 percent of the sending districts.

Efforts to Ensure Program Access Among Lower-Achieving Students

While programs have experienced increases in the number of program applicants, including greater interest in program participation by higher-achieving students, several have made efforts to ensure access by lower-achieving students as well so as to continue to serve a broad mix of students. For example, two programs have included secondary entry points that allow lower-achieving students to access the program. The Wayne Township tech prep program has created a pre-tech prep course for students who do not meet tech prep's algebra entrance requirement. Once these students catch up in algebra, they enter the core tech prep curriculum in grade 11. As its reputation has continued to grow, the Oakland health academy has had to work hard to recruit and include lower-achieving students — which is required by state rules.[3] In fact, the 30 slots designated for students outside of the academy's home high school for the 1995–96 school year were filled by students with 4.0 grade point averages. Lower-achieving students are recruited from within the host high school, largely by accepting some ninth grade students (many of whom are repeating the ninth grade), since all tenth grade students entering the academy must have taken biology, and the school is "tracked" so that only the higher-end students take biology in the ninth grade.

In addition, several sites have launched school-to-work initiatives that aim to specifically attract lower-achieving students, as well as students who may experience barriers to work experience and/or employment due to mild learning or physical disabilities. For example, Crater High School adopted a Youth Transition Program (YTP) in the 1993–94 school year under its school-to-work umbrella. YTP is a collaborative effort between the district's Vocational and Rehabilitation Division and the University of Oregon, which is designed to develop and enhance the academic and vocational abilities of students with special needs through work experience opportunities, assistance with transition needs, and coordination among the school, employers, and social agencies, carried out by the school's Youth Transition Specialist. Pickens County targets over-age ninth grade students (those who have failed ninth grade English classes) for job shadowing and internship opportunities; such early exposure to employers and workplaces may convince students who are in danger of dropping out of school of the value of a high school diploma, particularly when employers speak with students about job entry requirements. Pickens County also offers a program for students with special needs (the Student Transitional Education Program, or STEP) through its Career Center, which focuses on on-the-job training.

Gender Balance of Students Served

The balance of male and female students served by school-to-work programs is not an issue MDRC considered in its original study, but we believe it is important to understand whether school-to-work opportunities serve more males or females and what programs have had to do to

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[2]An advantage for participating students is that, as part of the grade 9 program, they are able to explore all of the shops before selecting one area of concentration starting in grade 10.

[3]Fifty percent of the academy students must meet three of the state's four at-risk criteria.

attract a balance. The statistics in Table 2.2 reveal that many of the programs have a fairly equal balance between male and female students, with males slightly more likely to participate. The major exception is programs that are solely focused on health — the academies in Oakland, Los Angeles, and Socorro — which have been predominantly female (60 percent or more) since their inception, despite efforts to recruit males. The Baltimore finance academy and the internship component of the Cambridge restructured vocational program (which includes programs in education and health) also have a significant majority of female students.

Information on the gender balance in 1992–93 (which was available for only 9 of the 16 sites and thus not included in Table 2.2) compared with that shown for 1995–96, and the predominance of females in health programs, indicates that the occupational focus of school-to-work programs is a major factor in determining the balance of male and female students. (This is consistent with findings for other programs; see Kopp and Kazis, 1995, for additional evidence.) In particular, the youth apprenticeship programs have increased the percentage of females participating, largely by adding new occupational areas — such as health and business/finance — to their traditionally male-oriented occupational programs (such as printing and metalworking). For these programs, efforts to recruit males and females to programs focused on occupational areas traditionally dominated by the other gender have not yielded better male-to-female balances by themselves.

In summary, the 16 programs have continued to serve a wide range of students, but the mix in terms of student achievement levels appears to change as the programs grow in reputation and scale. These trends are worth watching to assure that lower-achieving youth continue to be able to access school-to-work innovations and that a balanced number of male and female students are served.

Conclusion

The experiences of the 16 programs in this study demonstrate the feasibility of scaling up school-to-work programs to serve more students. The dimensions of program growth vary and include expanding into new occupational areas, recruiting new employer partners, strengthening existing program components, and adding new work- and school-based learning opportunities for students. The experiences of the 16 case study sites over the years reveal that employer participation has not proven to be the barrier to growing school-to-work innovations that many feared. Perhaps most important, these early school-to-work efforts have begun to "spill over" and influence the educational experience of growing numbers of students as their innovative instructional techniques are more widely adopted and, in some cases, most, if not all, program components are replicated.

Now that these programs have been operational for several years, additional implications of their program design decisions have come to the surface. In particular, the apparent trade-off between program intensity and size raises important considerations for local-level practitioners just starting down the school-to-work path. Additionally, while the "pull-out" program design is efficient for providing technical instruction and allows significant time for work-based learning, it may not be sufficiently attractive to students. However, several sites are successfully offering a mix of different school-to-work options to students, including both intensive, skill-specific programs

Table 2.2

Gender Balance of Students Served (percent distribution)

Program	1995-96 Male (%)	1995-96 Female (%)
Career Academies		
Baltimore finance academy	40	60
Los Angeles medical magnet	30	70
Oakland health academy	40	60
Socorro health academy	30	70
Occupational-Academic Cluster Programs		
Central Point	54	46
Dauphin County[a]	61	39
Portland[a]	52	48
Restructured Vocational Education		
Cambridge vocational restructuring[b]	29	71
Fort Collins restructured co-op[a]	48	52
Tech Prep Programs		
Pickens County	N/A	N/A
Wayne Township	57	43
Youth Apprenticeship Programs		
Fox Cities	59	41
Little Rock	83	17
Pickens County	52	48
Tulsa	87	12
West Bend	54	46

SOURCE: MDRC telephone interviews; estimates by program heads.

NOTES: N/A = data not available. Some percentages may not add up to 100 due to rounding.

[a]Gender breakdown is less relevant in Dauphin County, Portland, and Fort Collins since reform includes all students.

[b]Numbers are for students participating in the internship program only, not for all students enrolled at Rindge School of Technical Arts.

(youth apprenticeship) and less intensive approaches that nonetheless change some part of students' school-based experiences and offer opportunities for work-based learning.

As the programs have grown in both size and reputation, many have attracted more high-achieving students. This trend reflects the success of the programs and demonstrates the attractiveness of school-to-work approaches for all students. However, it also suggests that school and district officials need to pay attention to lower-achieving students' ability to access school-to-work initiatives to ensure that they are not closed out of these opportunities.

Chapter 3

Sustaining School-to-Work and Avoiding the Dangers of Marginality

The school-to-work movement seeks to bring about major changes in the established practices of schools and employers, and to sustain these changes over time so they become part of schools' and employers' standard operating procedures. The movement has avoided introducing trivial or trendy changes that last only a few months, adding a few minutes' lecturing about work in classes that are otherwise unchanged, or placing more students in workplace experiences that resemble little more than mediocre versions of co-operative education placements. If school-to-work is to bring about large-scale change in young people's preparation for higher education and work, it must weave itself into the basic fabric of schools and workplaces, while maintaining the innovative classroom and workplace practices that make it distinctive. It must also change teachers' daily classroom routines to provide students with school experiences that are substantially more educationally valuable than what already exists in most schools. Thus, a crucial task for school-to-work is to become a significant part of the mainstream education and work worlds, and improve students' experiences in the classroom.

The experiences of the 16 school-to-work initiatives that we first studied in 1992–93 provide an opportunity to investigate whether school-to-work can be sustained over time, and how school-to-work can change school-based activities. The principal conclusions that emerge from these communities' experiences since 1993 are:

- The 16 school-to-work initiatives have now moved from their start-up phase into a more mature, central, and sustained status in their schools, workplaces, and communities.

- There are significant barriers to sustaining school-to-work and enabling it to become a wholly accepted part of community life. These constraints require tailoring school-to-work to each local setting, gaining the support of a wide range of school staff members and employers, and building a positive community-wide reputation and identity for school-to-work.

- In maintaining changes in school-based activities, it is essential to regularly and candidly reassess the quality of students' classroom experiences in the school-to-work program, including the curriculum, methods of instruction, and work-based learning activities, and then to make a strong and sustained effort to bring about needed improvements in these key areas.

- Teachers in school-to-work programs need to participate in shared professional development efforts that enable them to collaborate with their colleagues on bringing about instructional change for their students.

This chapter first discusses issues of sustainability, then provides a brief summary of the classroom-level changes that have occurred across the 16 case study sites since 1993.

Evidence on Sustaining School-to-Work

To bring about long-term change in a large and complex institution, a reform must alter the institution's core. A reform is fully sustained and institutionalized when it is no longer perceived as a special project, and is seen as part of the legitimate and accepted routines of daily life. Sustained programs may also expect to be maintained and financed largely by the school district and community they serve, and influence the educational experience of a significant number of students. When an innovation fails to be sustained, it is typically either dropped or marginalized — reduced in scope, relegated to the host institution's back burner, and left with little capacity to affect students' daily experiences in schools and workplaces. Marginalized programs may continue to receive financial backing, but generally are not viewed as offering significant opportunities for education reform or enhanced educational opportunities for many students. Marginalization has been a common fate for many school reforms of the past (Sarason, 1982).

Few innovative school-to-work initiatives have been in existence long enough to determine whether they will be sustained permanently; most are currently in their start-up phase. Moreover, few follow-up studies have been done on the small number of programs that pre-date the passage of the School-to-Work Opportunities Act (STWOA). For these reasons, little previous evidence has been available on whether school-to-work can be successfully sustained in U.S. schools and workplaces.

A key goal of our effort to re-contact the staffs of the initiatives we visited for the 1994 *Home-Grown Lessons* report was to gather evidence on whether school-to-work was being sustained in their communities. This section describes what we found.

The significance of these findings must be interpreted in light of the fact that these 16 school-to-work initiatives are not statistically representative of the full range of school-to-work programs. Unlike some programs, these were started solely at the initiative of local leaders for local reasons, and they have deep local roots (although several programs, including the Wisconsin youth apprenticeship sites, also received strong backing and technical assistance from the state). They are more ambitious than some of the newer school-to-work programs in that they aim for significant change in schools and workplaces, and they serve heterogeneous mixtures of higher- and lower-achieving students. In all but a few of the communities, the staff believe that the initiatives are serving their schools' central missions; many of them stand squarely at the center of their schools' restructuring efforts. They were selected to participate in the study that led to MDRC's 1994 report in part because they had already been successfully launched; this selection criterion screened out the many efforts that failed to make it past their planning stage. These 16 initiatives are older than the post-STWOA initiatives: They began operating between 1982 and 1992, and their median age (as of fall 1996) is 5 years (mean age, 6.3 years; modal age, 4 years). In all of these respects, the programs discussed here may differ from the broad range of school-to-work initiatives, and thus may be more likely to be sustained.

With the important caveat that this is clearly not a statistically representative sample of school-to-work initiatives, overall, the experience of the 16 case study programs (summarized in Table 3.1) demonstrates that *it is feasible for innovative school-to-work programs that combine learning in high school and in the workplace to be sustained as core parts of complex school and workplace settings.* The evidence indicates that this is true for all five of the school-to-work ap

Table 3.1

Sustaining School-to-Work

Program Name	Start Date	Evidence of Being Sustained	Challenges to Being Sustained
Career Academies			
Baltimore finance academy	1987	• Administrative structure has expanded to accommodate additional academies and academy-like programs. • Recent development of school-within-a-school with separate geographic location within school and designated teaching team. • History of strong and sustained administrative, program, and financial support from business community. • Has become national, state, and local education reform model.	• Strong commitment to academy model may cause tension between school and district reformers and finance academy as school tries to respond to a state initiative in education reform. • New effort to incorporate academic teachers more fully into schools-within-a-school (as yet untested).
Los Angeles medical magnet	1982	• New facility being built (expected to be completed in 1998), which will allow expansion from 200 to 1,700 students. • Planned expansion will allow inclusion of grade 9 students. • Affiliation with the research institute at Drew University engages the students in hands-on activity. • UCLA and Drew faculty were recruited to be mentors. • Drop-out rate is only 1–2%; about 95% of graduating students go on to two- or four-year colleges.	• Delay in expansion is hurting recruitment efforts, since absence of grade 9 may be causing potential students to begin at and remain enrolled in other high school options. • Other high schools are not supportive of recruitment efforts, which may cause their best students to leave. • Relies primarily on word of mouth to generate applications.
Oakland health academy	1985	• Academy has reached its optimum size since there are enough students to offer three sections of most academy classes, yet remains small enough to maintain a personal level of contact between teachers and students. • Special activities, articulation agreements, and personal relationships with area colleges well developed. • Health academy replicated within high school and across district as primary reform strategy district-wide. • District and city (Oakland Works) have provided funding for academy teachers and staff to work over the summer as internship coordinators. • Duration (program in existence for over 10 years).	• Troubled school and district environment when the school was closed five weeks because of a teacher strike; this also steered community college professors away from the program. • Consolidation of health care facilities and staff turnover among employer partners. • Lack of acceptance and cooperation from school counselors is recurring issue.

(continued)

Table 3.1 (continued, 2 of 6)

Program Name	Start Date	Evidence of Being Sustained	Challenges to Being Sustained
Socorro health academy	1991	• Construction of health academy wing within high school to accommodate school-within-a-school. • District continues to fund extra staff development and provide academy resources. • School and district plan to replicate model in other occupational areas. • Strong buy-in from major area health care employers, despite changes in student work schedules (move to year-round school) and opening of competing programs. • Recognizable location, combined with academy's growing reputation, has increased program's visibility on campus.	• Slow evolution toward designating staff time to develop work-based learning (by reducing teaching load). • Turnover among teamed academic teachers.
Occupational-Academic Cluster Programs			
Central Point	1991	• Consistent administrative support in scheduling school-within-a-school blocked classes and in creating common prep periods for teamed teachers. • Increase in potential employer internship slots under Oregon's twenty-first century schools initiative; existing data base of 400 local employers willing to work with students. • Teachers developed a communicative relationship with superintendent, school board, and community. • Establishment of School-to-Work Coordinator and Youth Transition Specialist positions to act as point-people with employer community. • Established district school-to-work manager to collaborate with regional efforts and direct the district's school-to-work/career development program in grades K–12.	• Anticipated competition for internship spots as more schools build up similar programs. • Lack of well-prepared students for job placements causes concern for continued support from employers. • Teacher-driven individual programs may face challenges due to staff turnover/retirement.

(continued)

Table 3.1 (continued, 3 of 6)

Program Name	Start Date	Evidence of Being Sustained	Challenges to Being Sustained
Dauphin County	1985	• Whole school reform in which entire staff, faculty, and students participate. • Cluster structure well institutionalized. • Gained permission from the state to eliminate Carnegie units and replace them with performance-based outcomes. • More employer involvement facilitated in part by state-led public relations outreach efforts aimed at business. • Clearer student entrance routes established with grade 9 program. • Good post-secondary linkages. • Stable funding base.	• State turned down their grant request for federal school-to-work funds because program is much more advanced than others seeking funds. • Individual program areas face challenges in developing work-based learning—e.g., getting long-term placements in area hospitals because of downsizing.
Portland	1992	• Growth each year has allowed the program to include additional grade levels. • Work-based learning opportunities have increased steadily since 1992–93. • Well-structured learning objectives guide program development, including integration of career themes into academic subjects and creation of some career pathway-specific English courses. • Staff positions designated to oversee program development and the creation of work-based learning opportunities.	• Leader turnover: three principals have been with the school in the past five years, and changes in school-to-work coordinator position have occurred. • Budget challenges, including an anticipated cut resulting in the loss of six to eight teachers. • Mostly traditional school schedule does not allow enough time to move students into the community for significant work-based learning experiences and back into the classroom for school-based learning activities (revised schedule being proposed for students in grades 11 and 12). • Teachers lack experience and preparation in how to integrate technical and academic curricula, which inhibits implementation of school-to-work concepts (limited background on integrating classes across subject areas related to current state licensure requirements for teachers).

(continued)

Table 3.1 (continued, 4 of 6)

Program Name	Start Date	Evidence of Being Sustained	Challenges to Being Sustained
Restructured Vocational Education			
Cambridge vocational restructuring	1991	• Successful in moving far away from traditional approach to creating courses that combine subject areas and apply content to work. • New grade 10 program. • Innovations in vocational education are now being discussed for application school-wide. • Youth apprenticeship program (now called internships) have expanded from two programs to four. • Received a federal grant for vocational and academic integration. • New community service program for grades 11–12.	• Problems have arisen in soliciting hospitals and identifying work-based learning spots. • High school faces possibility of major funding cutbacks due to the development of a charter school starting 1996–97. • Heavy reliance on visionary leadership team. • Limited resources for teachers in internship programs.
Fort Collins restructured co-op	1990	• Clearly defined district leadership team and staff oversee program. • More high school students are being served, and career education components are being implemented in elementary and middle-school grades. • Growth in work-based learning: nearly twice as many students are now placed in work experience positions. • Strong support for coordinator positions by individual host high schools (program staff supported by individual school budgets). • Lively local economy, well-prepared students, good coordination, and strong communication links between school and employers.	• No formal training for participating employers. • Expansion in number of students served is not balanced by the availability of staff; no clear plan for addressing increase in staff needed to serve growth in numbers of participating students. • No direct links to area colleges.
Tech Prep Programs			
Pickens County	1992	• District efforts consistent with and supported by state school-to-work legislation (Pickens County was model for legislation). • Strong district leadership. • District requirement that all math, English, and science teachers be trained in applied teaching methods. • Enrollment at the Career Center has doubled. • Increase in number and variety of applied academic courses offered at all four high schools. • Strong post-secondary partnership and linkages.	• Some persistent skepticism from teachers and parents.

(continued)

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Table 3.1 (continued, 5 of 6)

Program Name	Start Date	Evidence of Being Sustained	Challenges to Being Sustained
Wayne Township	1989	• Program funded entirely by district (no special funds). • Increasing numbers of students and teachers involved in tech prep. • Knowledge of applied teaching techniques strongly considered when making new teacher hires. • Strong support from building administrators and state consortia, which provide technical assistance and training to teachers (housed within high school building).	• Loss of funding for program coordinator position to oversee teacher teams and the development of work-based learning slots. • Underdevelopment of work-based learning opportunities. • Frequent staff turnover in the part-time internship coordinator position.
Youth Apprenticeship Programs			
Fox Cities	1992	• Strong employer support and involvement. • State of Wisconsin has supported the expansion of youth apprenticeship through the development of technical curricula in new occupational areas. • Strong effort to connect students to post-secondary options. • Fox Cities Alliance for Education partnership received a federal school-to-work local partnership grant that has helped support the creation of some new efforts related to school-to-work and youth apprenticeship.	• Cost of the youth apprenticeship program remains high. • Three-day work/two-day school schedule and use of community college campus for academic classes makes it extremely difficult for secondary school teachers to participate and restricts the course offerings. • A limited number of students attracted to the idea of leaving their school sophomore year and making a commitment to technical instruction in one occupational area. • Insurance program is being dropped due to difficulty among students in mastering vigorous curriculum.
Little Rock	1992	• Continued state financial support and technical assistance. • Continued state funding for coordinator position to work with school staff and employer partners.	• Difficulty in recruiting qualified students, and low student enrollment levels within programs and at vocational center overall. • Resistance from some vocational teachers to implement youth apprenticeship. • Competition from new vocational course offerings at area high schools. • Program continues to be viewed as an add-on to regular vocational course offerings. • Difficulty in defining core components and work-based learning across different occupational areas.

(continued)

Table 3.1 (continued, 6 of 6)

Program Name	Start Date	Evidence of Being Sustained	Challenges to Being Sustained
Pickens County	1992	• Continuous expansion in number of students participating and occupational areas offered. • Good employer support. • Strong post-secondary partnership. • Continued growth in the tech prep program has concurrently affected the positive growth of the youth apprenticeship program.	• Experiencing attrition from program at the post-secondary level. • Intentional small size in some areas (limited by availability of jobs) and increasing staff responsibilities to create work-based learning experience for all students may make long-term continuation of smaller programs difficult. • Various occupational areas have experienced difficulty in retaining employer partners due to shifting economic factors. • Program structure makes it difficult to link work- and school-based learning beyond technical classes.
Tulsa	1992	• Strong and sustained employer partnerships. • Program has demonstrated flexibility in redesigning itself to take advantage of tech prep classes offered in host high schools (to accommodate student interest in remaining in host school) and dropping back from four to three years in duration. • New school-to-work initiatives focused on health, business, and transportation are now under way, with additional programs focused on international studies and telecommunication under development. • Chamber Partners Inc. was formed as an umbrella organization to handle the variety of school-to-work programs in Tulsa.	• Post-secondary component loosely defined. • Limited expansion in student participation in metalworking youth apprenticeship.[a] • Difficulty in recruiting students with strong enough basic skills to master the advanced vocational curriculum.
West Bend	1992	• Expansion into finance, insurance, and manufacturing. Future expansion anticipated in drafting and health services supported by state through the development of technical curricula. • Program has been expanded to a county-wide level and has received federal financial support through the state. • Involved in a county career guidance system called "Career Infonet." • Serigraph has hired about 75% of each graduating class.	• Lack of employer work sites limits program expansion in some areas. • Businesses do not typically have training opportunities in the range of areas called for by the youth apprenticeship curriculum; training requirements may be preventing businesses from taking more apprentices. • Insurance program is being dropped due to difficulty among students in mastering rigorous curriculum. • Post-secondary links are weak.

SOURCE: MDRC telephone interviews.

NOTES: [a] While the original metalworking youth apprenticeship program has not grown appreciably since 1993, it (and its employer partners) has served as a catalyst to launching multiple new school-to-work approaches in Tulsa.

proaches used by the programs we studied, although the experience of the youth apprenticeship approaches suggests that they may face special challenges in being sustained.

Our assessment of sustainability is largely based on program staff's perceptions of their funding security, consistency of administrative and employer support, role in motivating larger (school- or district-wide or community efforts), ability to reach growing numbers of students, and treatment on a par with their school's mandated (legally required) offerings. Based on staff's perceptions, at least 12 of the 16 programs appear to be well on their way to being permanently sustained. While the remaining four initiatives are operating well, staff members report that significant challenges to sustaining the efforts in their current form exist (particularly in the participating schools' relationship with the school-to-work programs), rendering their future somewhat uncertain. (The four programs that appear to continue to operate at the margin are Fox Cities, Little Rock, Tulsa's youth apprenticeship program in its initial form, and West Bend.) These staff members are fully aware of and are working on the factors that are making it difficult to sustain the initiatives, and they are hopeful about building secure links to their host schools in the near future. It is interesting (but is not statistically meaningful) that the four initiatives facing the greatest challenges to sustaining school-to-work use the youth apprenticeship approach; as we discuss later in this chapter, their issues may reflect their small size, heavy reliance on "pull-out" school- and work-based learning activities that have few connections with the participating schools, and relatively limited efforts to build a base of support among teachers, principals, and other school staff.

Of course, a reform's sustainability is ultimately measured by its long-term effectiveness in significantly changing the practices of schools and employers, in maintaining those changes, and in producing continuous, valued results for large numbers of students. At this time, there is insufficient evidence to make this assessment for all but a very few school-to-work initiatives; even those studied for this report lack the decades of experiences needed to answer questions about their permanence.

The Operation and Experience of "Sustained" Programs

School-to-work staff told us that virtually all of the hard work to sustain their initiatives was done at the school and workplace levels. In only a few cases were school district–level staff directly involved in sustaining these efforts, and state officials had even less to do with these efforts. Staff members cited the following activities as vital to their efforts to sustain their initiatives:

- tailoring the curriculum and instructional methods to the needs of teachers and employers;
- getting new instructional methods established in the school and workplace;
- building linkages with and soliciting support from school and workplace staff members who do not directly participate in the program; and
- building a positive community-wide reputation.

Taken together, these activities can be seen as enabling school-to-work to fit into the local

school, employer, and community contexts, while at the same time consistently providing innovative and high-quality learning experiences for students.

A Priority on Making Improvements that Complement Established Strengths

According to school-to-work directors, much of their time between 1993 and 1996 has been spent on improving the quality of their initiative and responding to perceived quality problems. They told us that they regularly assessed the strengths and weaknesses of their core features (typically school-based learning, work-based learning, connecting activities, and expansion efforts). Over time, they reallocated their efforts to focus on the areas of weakness. The result, in many cases, has been a perceived increase in the number of things they do well.

Initiatives that began with strong school-based learning activities typically moved to strengthen work-based learning activities. A large employer partner of the Oakland health academy, the Kaiser Permanente health maintenance organization, surveyed the Kaiser employees who worked with Oakland academy students; the survey's findings were used to redesign and intensify the summer internships at Kaiser. The Cambridge restructured vocational education initiative added job shadowing to a curriculum for tenth grade students that had previously been largely school-based.

Some initiatives that began with an emphasis on work-based learning have reshaped their connections with participating schools. The Tulsa metalworking youth apprenticeship's initial design relied entirely on the area vocational center and employers for all academic and vocational instruction. (Students' home high schools played no part in their educational experience after they became youth apprentices.) This initiative has now formed a partnership with a high school that will provide the academic instruction for participating students. Now, applied math and science classes at one partner high school have become a central part of the program model. Similarly, the Fox Cities youth apprenticeship program has continued to develop specific English and social studies courses for youth apprentices to complement college-level technical math and science classes.

As was also discussed in Chapter 2, what stands out in these examples is the consistent theme of refocusing efforts to build the initiative so that the less fully developed components receive maximum attention. Many initiatives appear to practice a kind of rotation between program elements, first spending several years developing either the school-based or the work-based component until it is functioning well, and then shifting their attention to other key components.

Schools Take the Lead on Efforts to Sustain School-to-Work

Schools and employers have differing incentives and play different roles in sustaining school-to-work:

- Many school system administrators in these 16 communities are very much aware of the national school-to-work legislation. This is in part because many school districts receive a significant portion of their most flexible, multi-use funding from federal Perkins Act grants, and are aware of the availability of (or also receive) school-to-work funding; it also reflects the prominent role that dis-

cussions of school reforms have in the world of many school leaders. Thus, school administrators have strong incentives to pay close attention to school-to-work, particularly in communities that have been pioneers in this movement.

- Local employers' incentives are more focused on responding to competitive pressures and maintaining profitability; while school-to-work is a growing interest of the employer community, it is secondary to these concerns.

In most school-to-work initiatives, the schools play the dominant role in shaping, expanding, and sustaining the program's activities — often taking the lead for the work-based learning activities and connecting activities, as well as the school-based activities. This was the case for 13 of the 16 initiatives; the exceptions were the youth apprenticeships in Fox Cities, Tulsa, and West Bend, whose directors are housed in industry-based groups and/or state-led consortia that are largely independent of the public schools. In the other 13 initiatives, school-based staff managed funding issues, took responsibility for identifying work-based learning slots (often with strong support from participating employers), led the drive for program improvement, reached out to community leaders and nonparticipating school staff, and led student recruitment and public information activities.

While employers have rarely been the driving force in sustaining school-to-work, they have contributed to this process in significant ways: by providing guidance to the leadership team on career fields that have enough demand for well-educated new workers to support a school-to-work initiative; by recruiting other employers to provide work-based learning slots and other kinds of support; by contributing to and helping to develop school- and work-based curricula; and by candidly identifying school-to-work components that need improvement, for example.

School-to-work staff and their employer partners believe that many (perhaps most) of the local employers in their areas are unaware of the STWOA, and are only gradually finding out about the school-to-work activities in their home towns. Such lack of awareness about the premise and value of work-based learning may make it difficult to recruit new employer partners and/or to develop high-quality work-based learning slots. These tasks are also difficult because, while many education professionals believe their world has been changed by the passage of the STWOA and by the creation of a home-grown school-to-work initiative, not many employers share that view — at least for now.

If school-to-work is to be sustained, then, it is most likely to happen through leadership with the schools, at least in the immediately foreseeable future. Whatever the source of the leadership, however, its importance cannot be overstated; and many school staff members have assumed school-to-work leadership roles that are of enormous value to the movement.

Active Administrative Support and a Full-time Position for the School-to-Work Coordinator are Needed to Sustain School-to-Work

The experience of these 16 communities indicates that strong leadership and support at two levels are critical to sustaining school-to-work. Specifically, the active support of the high school principal and/or district-level sponsor and a full-time position for the coordinator are needed to sustain school-to-work over time. Administrative leadership is essential to addressing the schedul-

ing issues that continue to challenge efforts to create block schedules (that is, reconfiguring the school day to allow for longer class periods in which activities like project work, field trips, work-based learning, and speaker presentations can take place), schools-within-schools, interdisciplinary courses, and time for students to participate in work-based learning. Only building or district administrators are typically in a position to establish scheduling priorities that will consistently support school-to-work in its various dimensions and activities. Without such support, school-to-work can end up operating at a less intensive level, offering scaled-down work-based learning opportunities and creating minimal curriculum innovations despite the best-laid plans. Administrative leadership is also central to creating curriculum innovations since administrators' approval and support are needed before teachers can develop new courses and blend courses across the disciplines to teach academic and work-related skills in nontraditional ways. For example, the Portland cluster initiative has experienced many of the challenges resulting from the absence of consistent administrative leadership. The school has had three principals during the last five years. While all of the principals were generally supportive of the school-wide school-to-work reforms, they did not have sufficient time to fully understand the initiative or how their leadership could address scheduling issues and push for additional curriculum innovation.

Most of the 16 initiatives have continued to devote resources to support a full-time (or nearly full-time) coordinator, in recognition of the crucial role played by these staff members. (The role of school-to-work coordinators, particularly in relation to developing and maintaining employer partnerships, is discussed further in Chapters 4 and 5.) This use of resources has been made relatively easy by the availability of funds from the STWOA and other "soft money" sources; almost all of the initiatives received these funds either through their state's allocation or directly from the National School-to-Work Opportunities Office's grants. Once these resources are no longer available, school districts are likely to be tempted to reduce funding for the coordination function these staff members perform. However, cutting back on funding for coordination positions would be short-sighted, particularly as programs are trying to expand. The initiatives' experiences clearly demonstrate that school-to-work cannot be sustained through the efforts of teachers who have a full teaching load. Initiatives that lack a full-time coordinator will undoubtedly have great difficulty in sustaining themselves and moving ahead.

Sustaining School-to-Work in the Workplace

Much less is known about the extent to which school-to-work is being sustained as a key part of workplace life in the 16 communities. Since some initiatives serve relatively small numbers of students, and many participating employers provide work-based learning experiences for only one or two students at a time, the extent of workplace transformation is presumably very limited. However, many of the employers whom we interviewed expressed a strong commitment to school-to-work and emphasized the benefits that their staff members receive when they participate. Overall, it is fair to say that whether school-to-work will be sustained in workplaces remains an open question.

Ownership

A central theme of school-to-work's experiences in these 16 communities is the need for broad support from the participating school, participating workplaces, and the community as a

whole. Reports from staff members pointed to an important distinction between initiatives that are perceived to be "owned" by the school and the community as a whole, versus those that are perceived to be "owned" only by the program's participating teachers, students, and employers. Ownership of an innovation exists when knowledge of and support for it is widely shared; when a broad consensus unites the innovation's mission with the goals and practices of schools, employers, and the community; and when a substantial number of people representing a cross-section of schools, employers, and the community are involved in the innovation. While ownership is not a prerequisite for sustaining school-to-work, the link between them seems to be very real in approximately half of the 16 programs discussed here.

Staff members said that seven initiatives — the Baltimore, Los Angeles, and Oakland academies; the Dauphin County and Portland cluster programs; the Fort Collins restructured vocational education program; and the Pickens County tech prep program — are perceived as being owned by the whole school, by the employers, and by the community. Four more are perceived as leaning in the direction of broad ownership, but aren't quite there yet (the Socorro academy, the Central Point cluster initiative, the Cambridge restructured vocational education initiative, and the Wayne Township tech prep program).

Initiatives that are seen as being owned by their whole school, employers, and the community can draw on a wide reservoir of support when problems occur, and they have excellent opportunities to attract students from all parts of the community and from many differing backgrounds. Their students run little risk of being stigmatized because of their participation in school-to-work; they are in the mainstream of community life, as are their teachers and families. Turnovers among school officials are unlikely to undermine the strong support that these initiatives have achieved.

The five youth apprenticeship programs are not yet perceived as having broad ownership. While these programs typically have strong employer buy-in and support, they have only partial support from their participating schools. The small size of these efforts is a key barrier to achieving a broad sense of program ownership. An initiative that serves as few as 30–50 students faces considerable difficulty in persuading many "mainstream" teachers, students, and families that it is directly relevant to them and their lives. As noted in Chapter 2, "pull-out" initiatives also encounter sustainability problems, in part because they face more difficulties creating broad ownership. The teachers and staff of the participating high schools have few opportunities to work with these programs' students; moreover, many students decide not to enroll in these programs because they do not want to leave their high school friends and teachers behind.

Initiatives that have not achieved broad ownership seem to face a greater risk of becoming marginalized, and perhaps of shrinking or disappearing once their grant funding is used up or if there is turnover among school officials. In a competition for scarce resources and administrative support, they may not have enough allies to prevail. A challenging question for the leaders of these efforts is: How can school-wide and community-wide support for school-to-work be built?

Conflicts Over Ownership Hold Special Dangers

School-to-work staff cited occasions when schedulers, counselors, and administrators made decisions that interfered with or damaged the program. Scheduling, in particular, remains a paramount issue that affects program institutionalization and growth. When valued school-to-work

teachers are scheduled to teach classes unrelated to school-to-work, and when students participating in school-to-work receive class schedules that omit crucial classes (either school-to-work classes, or advanced classes they need to prepare for college) or that interfere with their work-based learning activities, the whole effort is jeopardized. Many readers may view scheduling as merely a small administrative issue that can be easily resolved with a few authoritative decisions, but that is most certainly not the case. Scheduling issues are driven by deeply rooted factors: years of precedents, collective bargaining agreements on staffing rules, competing priorities held by many factions within a high school, and state and district rules on required courses, graduation requirements, and seat time in required courses. These issues are persistent ones that require continuing and vigorous top-level attention. The unhappy history of scheduling disputes points to a broader lesson: When school staff who do not support school-to-work are in positions that give them control of key school-to-work features, school-to-work is unlikely to be sustained.

The Evolution of School-Based Activities

Many of the initiatives in this study were launched with a strong emphasis on creating distinctive school-based activities, as our 1994 report showed. Since then, school-based activities have continued to evolve and to face the challenges of changing long-established patterns of schooling. Our update interviews with school staff provided information on the strategies they have used to improve their school-based activities.

If the school-to-work movement is to succeed, it must change the daily work that teachers and students do in classrooms, to create school experiences that have substantially more educational value than is true of present practices in most high schools. The 16 initiatives used five major approaches to shape school-to-work in the classroom, as MDRC's 1994 report found: (1) changing the curriculum of academic courses; (2) changing pedagogy (teaching and learning methods); (3) creating career exploration and work-readiness instruction; (4) changing and expanding occupational training; and (5) creating new student support structures.

In the years since 1992–93, the 16 initiatives we studied have continued to use the innovative classroom approaches with which they began their work. Thus, their school-based changes appear to be sustained over time. In our telephone update interviews, we focused on the evolving school-based activities that affect teachers and other staff members; in the absence of direct observation of classrooms, it is easier to obtain valid information about staff activities than about changes in students' daily experiences. Staff members' reports pointed to two consistent patterns:

- First, the methods of classroom innovation have remained essentially the same in all but one of the initiatives;[1] the main curricular, pedagogical, and occupation-related changes that affect teachers are intact.

- Second, the school leaders and staff of many school-to-work initiatives regularly assess how their classroom activities need to be strengthened and how the needed changes can best be implemented. They have found great value in taking strong measures to determine how they need to change in order to serve their

[1]The single exception is the Tulsa youth apprenticeship program, which initially provided students' academic courses at the Tulsa Technical College instead of at the students' home high schools. This has now changed. Students take academic courses at their home high schools, and travel to Tulsa Tech for vocational training courses.

students better and to improve their relationships with their host school and employer partners.

This shift to increased monitoring of school-based activities' strengths and weaknesses, with greater attention to remedying the weaknesses — particularly through sustained professional development opportunities for staff — emerges as a significant lesson from the initiatives.

Monitoring Curriculum and Pedagogy

Staff members in several initiatives told us that once school-to-work was launched in their school, they came to understand the need to reassess regularly the curriculum and their teachers' movement (or lack of it) toward using new instructional methods, in order to make sure that the initiative meets high standards.

Several initiatives participated in structured assessments of their work. The Baltimore finance academy's employer governing board examined its school-based activities, identified several key areas for improvement, and created board subcommittees to work with the program director on implementing the needed changes. The changes were major: Academic teachers have been designated to do all of their teaching in the academy, making them full and accountable members of the program's school-within-a-school, and the academy's teachers will meet each Thursday afternoon for a half-day academy planning effort. These changes aim to raise the program's academic standards. The Tulsa youth apprenticeship's employers worked together to design the curriculum for students' post–grade 12 year. The Los Angeles health academy worked with the California Wellness Foundation to assess the academic content of the program's work-based learning activities (in which students work on academic assignments from their teachers during work-based activities); the result was to increase the proportion of work-based activities that are located in research settings, where the academic benefits were found to be consistently greater.

Increased school-wide use of hands-on pedagogy has been a goal of Dauphin County's cluster initiative. The school schedule was changed from 45-minute class periods to 75-minute periods to enable teachers to use a wider range of instructional methods, including group work, cooperative learning, and independent work. Pickens County's tech prep initiative was aided by a similar switch to 90-minute classes, which were designed to allow for more activity- and project-based teaching. Oakland's health academy has started a Health Education Center and school-based clinic; its students serve as peer health educators and clinic staff in this new school-based enterprise.

Staff members' reports make it clear that it is much easier to change curriculum than to make changes in the instructional methods that teachers use every day. In particular, the challenge of integrating instruction across disciplines has proved to be a formidable one that requires continuing and vigorous effort. The Cambridge restructured vocational initiative's staff worked very hard on a lengthy planning process to design the grade 10 classroom activities. In addition, Cambridge's teachers created a new half-day course, "Community Problem Solving," in which language arts, social studies, technical instruction, and community service are combined to address a single community issue identified by the class. Cambridge has also increased the number of academic teachers in the program, selecting teachers who want to participate in curriculum integration. We were told by other school-to-work heads that it is difficult to create a curriculum that blends disciplines and merges academics with occupation-related instruction, since this requires teachers to

move away from traditional course designs, scheduling, and classroom practices. Many programs and teachers are reluctant to do this; their classrooms generally make few changes in students' experiences. Staff also noted that teacher certification issues (especially in the sciences, where teachers are often certified to teach only a single field, such as biology) can impede curriculum integration efforts, because each course's title is seen as determining the type of certification that its teacher must possess.

The consistent lesson from the 16 sites is that ongoing, continuous, and candid assessments of their initiative's strengths and weaknesses are necessary to keep it moving forward. When teachers, directors, and employers collaborate to identify needed improvements and then implement them, the isolation that often prevents individual teachers from upgrading their instruction is replaced by shared support for change. And while instructional change is extremely difficult and takes a long time to be realized, the successes of a few programs show that pedagogical change is attainable.

Building New Professional Development Opportunities for Teachers

The extensive use of innovative forms of professional development for teachers was a central finding of *Home-Grown Lessons* (Pauly, Kopp, and Haimson, 1994). Support for teachers' learning and collaboration is a necessary precursor to instructional change, according to several school-to-work heads. When teachers work together on improving their instruction, researchers point out, the results include greater professionalism, higher standards, increased use of innovative pedagogy, and new kinds of teacher–student relationships (McLaughlin and Talbert, 1993). While many of these activities were reported in MDRC's 1994 study, several innovations since then are notable.

In Dauphin County's cluster initiative, academic and vocational teachers are paired together to visit workplaces, meet with employers, and assess the match between employers' needs and the program's curriculum and instruction. Portland's cluster initiative has a staff member who serves as a liaison with employer partners and develops job shadowing opportunities for students; recently, teachers have joined him during his daily tasks to learn how to develop job shadowing slots for students in their cluster. In Pickens County, the local Partnership for Academic and Career Education (PACE) consortium now designs and conducts career exploration workshops that bring together teachers, parents, and students.

Tension between academic and vocational thinking remains in some schools; staff members in Portland's cluster initiative note that because they rely on consensus decision-making by the teachers in each cluster, some clusters have moved slowly to consider possible changes in the academic curriculum. While new occupation-related courses have been created in each of Portland's clusters, many of the other courses are relatively untouched by school-to-work and its themes — and instructional change has been limited.

Professional development for teachers is often regarded as a start-up activity for new initiatives that must "convert" teachers to new kinds of educational approaches. Staff members report that ongoing professional development is vital, too — to meet the needs of teachers who are new to school-to-work, and to avoid the kind of professional isolation that has undermined the quality of much traditional instruction. The pressures that cause many teachers to rely on textbooks, lecturing,

seatwork, and multiple-choice tests do not vanish in school-to-work. To combat them, professional collaboration and shared program-improvement efforts among teachers appear to be a necessary part of school-to-work's evolving school-based activities.

Convergence?

Suggestive evidence exists that some commonly used activities may contribute to students' school experiences. In a wide range of school-to-work initiatives:

- The use of a school-within-a-school structure has been sustained in all of the initiatives that initially chose this structure, and several initiatives have taken steps to strengthen their schools-within-a-school.

- The creation of a clear school-to-work identity was seen as valuable by leaders of all 16 efforts. When teachers and students know they are part of distinctive school and workplace experiences, they appear to become more engaged in school-to-work.

- Staff members underscored the benefits of building new teacher–student relationships in school-to-work, with teachers following up when students are absent from school, working closely with other teachers when a student falls behind, and (more positively) building on the special strengths of each student in identifying appropriate work-based learning experiences and preparing for the college admissions process. Because teachers and students in school-to-work tend to work together closely for several years, they have an unusually large number of opportunities to build on their relationships and take advantage of their shared interests.

Home-Grown Lessons found that the various school-to-work models tend, in practice, to overlap and to use many of the same design features (Pauly, Kopp, and Haimson, 1994). As school-to-work initiatives mature, they may retain the features that offer strong support to teachers and students in their day-to-day classroom experiences, while other features may dissipate. The features discussed above appear to be among those that are seen by staff members as particularly supportive.

Conclusion

Home-Grown Lessons highlighted the benefits that school-to-work has gained from having a clearly defined identity (achieved by providing students with experiences in a school-within-a-school, regular weekly seminars to share work-based learning experiences, and distinctive, adult-like assignments). Initiatives that established a clear identity were generally able to build a positive reputation, as well — thereby facilitating student recruitment, attracting adult support, and achieving institutionalization. Overall, this report's evidence on the evolution of the pioneering initiatives toward sustainability provides encouragement for policymakers, educators, employers, and community leaders who see school-to-work as a significant part of their efforts to improve young people's success in school and preparation for post-secondary education, training, and rewarding careers. It is clear that many of the 16 initiatives have made fundamental changes in the daily

classroom experiences of their students and teachers. Aggressive monitoring of curriculum and pedagogy, combined with effective implementation of needed improvements, vigorous professional development for teachers, and opportunities for professional collaboration and support, can enable school-to-work to sustain educational changes and avoid marginalization.

Chapter 4

Sustaining and Expanding Employer Involvement

This chapter chronicles the expansion of employer involvement in the school-to-work initiatives across the 16 programs studied, including employers' tasks, accomplishments, and challenges, and examines how employer roles have evolved since 1992–93. The principal conclusions regarding these employers' contributions to school-to-work are:

- Across all 16 sites, most early employer partners are still participating, more employers have been successfully recruited, and many employers are increasing the range of work-related activities they provide.

- Most employers, while willing to participate in a wide range of school-to-work activities, still tend to provide work experience for just a few students, rather than support a number of slots commensurate with the size of their organization (for large employers). This limitation has not hampered program growth, however, since most sites have engaged many more employer partners than they started with.

- A large investment of school staff time, particularly in recruiting more employer partners and maintaining these relationships, has been required to support employer involvement.

- The sustained involvement by many original employer partners suggests that benefits gained by employers through school-to-work partnerships continue to accrue over time.

Within the emerging school-to-work system, employers are asked to become active and sustaining partners with schools by supporting new learning opportunities for students, particularly at the workplace. In fact, the ability of school-to-work to grow in scale depends largely on employers' ability to provide work-based learning positions for large numbers of students. Clearly, the employers who have joined with the 16 case study sites featured here have met this challenge. At each of the 16 sites, students are now experiencing workplace learning (three sites had not yet implemented workplace learning when they were first studied during the 1992–93 school year); work-based learning opportunities are being offered to a greater number of students than was the case in 1993; employers have continued to contribute to school-to-work in a wide variety of ways; and more employers have now joined with schools and community groups in efforts to develop school-to-work systems.

To answer the first-order question — "Are employers participating?" — we present the current scale of employer involvement at each site (see Table 4.1). This first section offers lessons from the 16 sites on how to recruit additional employers to participate in established programs. The

Table 4.1

Changes in Scale of Work-Based Activities

Program	When Work Activities Occur		Total Number of Slots		Total Number of Employers	
	1992–93	1995–96	1992–93	1995–96	1992–93	1995–96
Career Academies						
Baltimore finance academy	Internships summers after grades 11 and 12 plus job shadowing and mentors in earlier grades	Same as 1992–93	44	60–70	30	50–60
Los Angeles medical magnet	Job shadowing and internships in grades 10, 11, and 12	Same as 1992–93	220	220	13	8–9
Oakland health academy	Summer after grade 11, some during grade 12	Same as 1992–93	70	90–100	15	15–20 [a]
Socorro health academy	Grade 12 co-op	Job shadowing rotation in grade 11; co-op positions in grade 12	25	74 [b]	9	13
Occupational-Academic Cluster Programs						
Central Point	Internships in grades 10–12	Same as 1992–93	190	242	70	400 [a]
Dauphin County	Grade 12 co-op	Job shadowing in grade 10; co-op and internships in grades 11 and 12	80	116	73	325 [a]
Portland	Job shadowing begun second semester of grade 9	Grades 9–10 job shadowing; grades 11–12 internship	251	900–1,000 [c]	54	299 [a]

(continued)

Table 4.1 (continued, 2 of 3)

Program	When Work Activities Occur		Total Number of Slots		Total Number of Employers	
	1992–93	1995–96	1992–93	1995–96	1992–93	1995–96
Restructured Vocational Education Programs						
Cambridge vocational restructuring	Grade 11 or 12 internship	Grade 10 job shadowing; grade 11 or 12 internship	12	44	1	9[d]
Fort Collins restructured co-op	Grades 11–12 internship, paid work experience, or job shadowing	Grade 10 volunteer/service learning; grades 11 and 12 internship, paid work experience, or job shadowing	550	1,000	400	450
Tech Prep Programs						
Pickens County	No work-based learning[e]	Job shadowing, service learning, expanded co-op opportunities and summer internship are being introduced	N/A	535[f]	30	200
Wayne Township	Grade 12 co-op planned	Same as 1992–93	N/A	60[g]	12	35–40[a]
Youth Apprenticeship Programs						
Fox Cities	Grades 11 and 12 apprenticeship positions	Same as 1992–93	7	48	5	29
Little Rock	Grade 12 apprenticeship positions	Same as 1992–93	12	19	5	20–30[a]

(continued)

Table 4.1 (continued, 3 of 3)

Program	When Work Activities Occur		Total Number of Slots		Total Number of Employers	
	1992–93	1995–96	1992–93	1995–96	1992–93	1995–96
Pickens County	Grade 12 and post-secondary apprenticeship positions	Same as 1992–93	4	14	4	28[a]
Tulsa	Summer, grade 12 , and post-secondary apprenticeship positions	Same as 1992–93	16	23[h]	6	9
West Bend	Grades 11–12 apprenticeship positions	Same as 1992–93	12	33	1	16

SOURCE: MDRC telephone interviews.

NOTES: N/A = data not available.

[a]Site maintains active list of employers interested in hosting students, if right match is found; a subset of these employers hosts students at any one time. Employer partners are also typically involved with other aspects of the program, including school-based project development, career days and classroom presentation, teacher externships, and so forth.

[b]During the 1995–96 school year, 40 eleventh grade students participated in full-year job shadowing/rotation class, and 34 twelfth grade students participated in co-op.

[c]During the 1995–96 school year, 650–700 ninth and tenth grade students participated in job-shadowing opportunities, and 250–300 eleventh and twelfth grade students participated in internships.

[d]Additional employers provide job shadowing opportunities for students.

[e]No work-based learning formally associated with tech prep in 1992–93, although some students enrolled in tech prep classes also subsequently enrolled in co-op and youth apprenticeship programs offering work-based learning experiences.

[f]Approximately 35 students enrolled in co-op, 200 (mostly vocational) students completed job shadowing, and 300 students were engaged in service learning projects. Co-op and job-shadowing activities are similar to previous years, in which work-based learning was not linked to tech prep.

[g]30 students per semester; 60 per year.

[h]Although 33 students are enrolled in the youth apprenticeship program, only 23 work-based learning slots are required since work-based learning activities do not begin until students' second year in the program.

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next section explores limits to employer involvement experienced by the case study sites, including factors that constrain the number of work experience slots individual employers can provide, and reasons for turnover among employer partners. In the third section, examples of how employer involvement has changed in response to program growth and evolution are offered, including common employer contributions that go beyond providing work-based learning opportunities. Finally, the benefits to participation experienced by veteran employer partners are summarized. Chapter 5 continues this exploration of employers' contributions by looking at changes in students' workplace experiences and efforts to connect school with work.

More Employers Are Participating

Across all 16 sites, most early employer partners are still participating, new employers have been successfully recruited, and many employers are increasing the range of work-related and other activities (giving presentations, mentoring) they provide. Although many employers contribute in multiple ways to the school-to-work initiatives, the provision of work-based learning opportunities for students in the workplace remains their key role. Yet, at most sites, individual employer partners do not seem to be providing significantly more work-based learning slots. Many individual employers are able to host only a few (up to four) students at a time at the worksite, although some employers provide workplace experience opportunities to more than four students. Large employers, in particular, do not appear to be routinely providing proportionately more work-based learning positions than are small employers. In addition, although most employers have sustained their commitment to school-to-work since 1993, some programs have experienced turnover among employer partners. Thus, as programs enroll more students, more employer partners are needed.

The experience of the 16 case study sites, however, does not suggest that a lack of available worksites has systematically limited program growth. Most programs have compensated for the fact that many employers may accept only a few students by engaging many more employers, and school staff have developed effective ways of working with large numbers of individual employer partners.

While Table 4.1 shows expanded employer involvement across sites, the following programs have notably increased the number of employers actively involved:

- In preparation for Oregon's 21st Century Schools initiative (which requires a community's high schools to work together to ensure that all students participate in some type of work experience), the Central Point cluster program (Crater High School) has created a data base of over 400 employers who are interested in hosting student interns. Over 200 Crater High School students are placed in internships throughout the school year.

- Since 1993, Portland's cluster program, Roosevelt Renaissance 2000 (also known as RR2000), has recruited nearly 300 employer partners to provide

nearly 700 job-shadowing opportunities for students in grades 9 and 10, and nearly 300 internship experiences for students in grades 11 and 12.

- In an effort to offer some work-based learning experience to all students enrolled in tech prep courses, Pickens County has mobilized area employers to provide expanded job shadowing, service learning, mentoring, summer internships, and cooperative education opportunities for students. (See Chapter 5 for an explanation of these activities.)

- Wisconsin youth apprenticeship programs in Fox Cities and West Bend have engaged a significant number of new employer partners, which has enabled each program to expand into four new occupational areas.

- Tulsa's Chamber of Commerce has successfully engaged employers across a range of occupational areas in developing new school-to-work initiatives in health, business, international studies, transportation, and telecommunications, as well as recruiting several new employers to participate in its original youth apprenticeship program, Craftsmanship 2000 (C2000).

Some case study sites have been able to recruit more employers to provide internships than there are students to fill such slots. Rather than lose potential internship placements, program staff establish a relationship with interested employers, find other ways for employers to become involved with school-to-work (for example, giving classroom presentations, mentoring), and maintain a list of potential placements. This allows schools to be more selective in placing students in internships that closely match their occupational interests, and may give employers a break from intensive participation for a semester or school year. Engaging more employers may also reduce the risk of severe set-backs if one or more employers drops out.

Program Staff Are Needed to Work with Employers

The expansion in employer involvement has happened mostly through a large investment of school-to-work programs' staff time. While employers are certainly willing partners who make substantial contributions to school-to-work, school staff typically play a dominant role in shaping work-based learning activities (employer involvement in Tulsa, West Bend, and Fox Cities is an exception). Adding employer partners and placing more students in the workplace requires an intensive employer recruitment effort, followed by more coordination and monitoring by school staff. When programs expand into new occupational areas, school staff often must gain substantive knowledge about a new industry, develop new work-based learning tools, and engage new employers in the process of program development and start-up.

All of the case study sites have created staff positions to work largely, if not exclusively, with employers. Several sites had designated full- or part-time positions by 1992–93, six sites have created new positions since 1993, and other sites have reduced some teachers' loads to give them time to work with employers (Oakland, Socorro). Staff in these positions are mostly school-based

(although several are housed within intermediary groups, such as area chambers of commerce and business or trade associations) and have primary responsibility for recruiting employers; for coordinating employer contacts with the school, teachers, and students; for engaging teachers in the process by training them to create work-based learning opportunities and helping them to incorporate students' work experience into classroom learning; and for monitoring student placements directly or through teachers. Employers at several of the case study sites complimented schools on the creation of such positions, saying that having a consistent, available school contact (whom they could more easily reach by telephone than a classroom teacher) facilitated their participation in school-to-work. Conversely, sites like Wayne Township that have allocated very modest amounts of staff time to work with employers, or that have experienced turnover in this position, seem to have made less progress in developing employer partnerships.

Employer Recruitment Strategies

The success of the case study sites in engaging large numbers of employers in their programs sheds light on how to recruit employers into established programs. Examples of fruitful employer recruitment strategies implemented by staff at the case study sites include:

- building an excellent track record of providing high-quality, well-prepared students and good coordination based on strong communication links between schools and employers (Fort Collins);

- keeping meticulous records of all work-related activities — including students' career exploration exercises — and employer contacts generated by students, parents, and teachers; and periodically recontacting employers to confirm interest (Central Point);

- building on existing partnerships by asking established employer partners to recruit colleagues; following up quickly after employers make the initial introduction (Baltimore);

- beginning by asking employers to participate at low levels — for example, by hosting job-shadowing visits by small groups of students (Portland, Baltimore), working with only one student, or offering a half-time position initially (West Bend, Oakland);

- based on the belief that economic considerations motivate long-term participation (although employers may initially express interest in school-to-work out of a sense of community service), targeting employers who are experiencing growth or who employ an aging work force, and thus need to hire skilled workers (Tulsa, Fox Cities);

- as programs grow and new initiatives that share the same employer base come on line, consideration of developing a collaborative organization, or using an

existing intermediary, to manage employer recruitment so as to minimize overlap and avoid making competing requests of employers (Baltimore, West Bend, Tulsa);

- codifying expectations around employer participation through memoranda of understanding (Los Angeles), to help minimize possible disruption caused by turnover among employer staff and to maintain high levels of employer activity;

- building on state and federal school-to-work public relations campaigns when trying to engage employers in local program activities (Dauphin County).

The experience of the 16 case study sites does not suggest the use of wage subsidies or tax credits as incentives to increase or maintain employer participation. In 1993, two sites (Socorro and Oakland) used wage subsidies (through Job Training Partnership Act [JTPA] funding and local tax revenues) to help pay student wages as an incentive for local health care providers to offer work-based learning opportunities to students. Now, Socorro no longer receives JTPA funding for this purpose, and Oakland has reduced its dependence on the Mayor's Summer Youth Employment Program as more health care providers are paying students directly for summer internships and work during the school year (although some Academy students are still hired and paid through the Summer Youth Program). It is difficult, however, to generalize about financial incentives given their limited application at the case study sites. Similarly, the limited experience of the case study sites in working with unions makes it difficult to infer how union involvement may affect employer participation in school-to-work. However, we do know that one site (Fox Cities) — which experienced difficulty placing youth apprentices in a unionized workplace — decided not to target employers with strong unions when they expanded into new occupational areas.

Once employers are participating in school-to-work, school staff continue to monitor them closely, making themselves available to deal with issues that may arise concerning students at the workplace, to provide additional information, and to answer employers' questions. Further suggestions from the case study sites on sustaining employer involvement and reducing burn-out include:

- Stay abreast of industry shifts and economic changes that could affect individual employer participation, and try to adjust program demands accordingly (Oakland, Baltimore).

- Cultivate a sense of program ownership among business partners by including employers in program accomplishments and awards, and provide opportunities for employers to interact with students outside of the workplace (Socorro, Oakland).

- Minimize meeting time and, when possible, plan meetings to accommodate employers' schedules or to piggy-back on program events that might interest employers (Oakland). Save employers' time by delegating consideration of specific program issues to subcommittees (Baltimore).

Factors That May Limit Employer Participation

Although employer participation has generally not slowed program growth, a few exceptions suggest that there are particular situations where a lack of worksites may limit program growth. For example, while the experience of the case study sites clearly suggests that expansion into new occupational areas is feasible, this type of growth has presented challenges and highlighted locally specific issues for some sites. In some sites, expansion into new occupational areas has been delayed because of the difficulty of finding employers who would provide work-based learning opportunities in those areas. Pickens County, for instance, slowed the expansion of its youth apprenticeship program into graphic communications, while West Bend is planning to drop its youth apprenticeship in insurance since the program did not mesh with employers' needs for future employees. (Insurance companies tend to seek college graduates for new hires.)

While it does not appear that, in general, limits on the number of students with whom individual employers can work have constrained program growth, it is important to understand why such limits exist. Our interviews with employers and program staff suggested a variety of factors that often prevent employers from working with large numbers of students, including:

- **Employer staff time commitments.** Hours of worksite staff time are required to facilitate student learning and teach the competencies specified in training plans. Intensive program requirements, such as measuring and checking student achievement in a range of highly specific occupational competencies (as is the case in many youth apprenticeship programs, including those in West Bend and Fox Cities), may require more staff time than employers are willing or able to devote. Even the less intense work-based learning components require significant staff time to work with students to make workplace experiences meaningful. In addition, many firms make several employees available to each student at work, through supervisory and mentoring services, and these activities consume valuable staff time.

- **Multi-year commitments.** Multi-year employment commitments to individual students mean that slots do not turn over as quickly in some programs, such as Tulsa's C2000 and Pickens County youth apprenticeship programs, as in others.

- **Student salaries.** High expectations for student salaries may reduce employers' willingness to work with students. Some employers in Pickens County have been unable to commit to paying students since competition for skilled workers and low employment rates may force employers to pay students an average of $10 an hour, or up to $15,000 a year plus overtime and benefits. Tulsa has continued to ratchet down its youth apprenticeship wage structure in response to employers' cost concerns.[1]

[1]Although student pay was not a key interview topic, it appears that most students at the case study sites are paid an hourly salary ranging from the minimum wage ($4.75) up to $10. Moreover, initiatives that set high goals for student salaries may have difficulty convincing some employers to participate.

- **Employer size and work-force needs.** Large employers seem to be able to accommodate more students who are often spread across several different departments, whereas small employers may face physical space and staffing constraints. Yet, in proportion to the overall size of their work force, many large employers are not accepting as many students as are small employers.

Turnover Among Employer Partners

While the sites have generally maintained productive relationships with most of their employer partners over time, almost all sites experience some turnover — either when individual employees who were closely involved with the school-to-work initiative left, or when an entire organization withdrew support for the initiative. In general, the experience of the 16 case study sites suggests that employers leave the partnership for external reasons, not because they are dissatisfied with student workers or school staff. Health and finance, both popular occupational foci for school-to-work programs, have been rocked by economic changes since 1993 that have in some cases affected school-to-work partnerships and individual sites' ability to expand into these areas. For example, as part of the health care reform movement, several health care providers aligned with the Oakland Health Academy have merged, and in some cases reduced the number of student work-experience positions offered. School-to-work programs focused on health careers often face the added challenge of competition for work-experience positions from older, more educated students enrolled in allied health and medical school programs. In the finance area, a number of banks partnered with the case study sites (particularly in Baltimore and West Bend) have merged, and financial institutions associated with other sites have experienced downsizing.

Turnover among employer partners has contributed to the need to recruit more employer partners and to continually monitor and at times reaffirm relationships with existing partners. While the task of recruiting new employer partners often falls on school staff, employers who are fully committed to school-to-work company-wide are more likely to find replacements to work with students when individual employees who were involved in the program leave their organization. In some instances, programs have benefited by mergers and staff transfers when school staff are able to maintain their personal relationship with employees who become affiliated with new institutions, which can offer new workplace experiences to students. In general, low turnover and employer stability in the 16 programs reflect excellent employer relations developed by school staff and careful attention to employer needs.

Employer Involvement May Change as Programs Evolve

The experience of the 16 case study sites suggests that, while employers as a whole remain involved in many of the same activities in which they participated at start-up (for example, providing program oversight, workplace experiences for students, input on curriculum, and help recruiting other employers), individual employers tend to participate in more varied ways over time. It may be that, over time, both school and employer needs become more clearly defined, and schools and employers become more comfortable communicating these needs to each other as partnerships mature.

For example, school staff in many sites continue to emphasize sensitivity to employer needs by carefully screening students before they enter a work placement, quickly removing students who experience difficulty on the job so as not to jeopardize employer relations, and, in general, making judicious choices about how much time and effort employers are asked to contribute. Yet, at the same time, most sites have become more comfortable presenting employers with clear expectations of what is required of work-based learning positions. In most cases, school staff have approached employers about increasing both the range of opportunities offered to students and teachers and the intensity of established internship or youth apprenticeship positions.

Across the 16 case study sites, employers appear to have both remained active participants in the original school-to-work initiatives and have often become part of expansion efforts or other school reform efforts. We found that, over time, employer input may shift from intensive oversight (as may be required to start a new initiative) to more targeted input on specific program enhancements, including improvements to school-based learning. At the same time, many employers offer more opportunities for workplace experience to students and teachers (as is further described in Chapter 5). The following examples illustrate the potential evolution of employer involvement:

- Several sites are moving away from frequent general-purpose advisory meetings with employers, and are reducing employers' general oversight function as programs mature. However, groups of employers (who may or may not have been part of original advisory boards) seem to form frequently to work with school staff on the continued development of specific program areas (for example, establishing a health clinic in Oakland, or strengthening the school-within-in-a-school in Baltimore). That is, as the demand for general oversight decreases, the advisory role may become more specialized, because employers are able to focus on individual program areas.

- In some cases, the same employer may provide several different types of workplace experiences to students and teachers — for example, by hosting job shadowing for students in the ninth and tenth grades, internships for upperclass students, and summer externship opportunities for teachers.

- In a number of places, employers have become more engaged in school-based learning, by making visits to schools, meeting with occupational teachers, and responding to requests from teachers for workplace examples that can be taught in classrooms (Dauphin County, Wayne Township, Central Point, Oakland, Pickens County).

- Employers who helped to start the original 16 programs are now involved in launching new initiatives, particularly by serving on oversight committees that guide program expansion into new occupational areas (Baltimore, Tulsa). Moreover, as was true in many of the original case study sites, employer interest and participation is a determinant of expansion into new occupational areas (Little Rock).

- In some places, employers are participating in larger discussions of school and district reform.

As more employers become interested in school-to-work, it makes sense for schools to develop more and varied employer activities, since all employers may not be willing or able to participate in the same way.

Participating Employers Continue to Gain Benefits from School-to-Work Partnerships

Sustained involvement by many employers with the 16 programs studied suggests that benefits gained through school-to-work partnerships are not one-time occurrences, but rather continue to accrue over time. In fact, it appears that the longer employers are involved, the greater their ability to see benefits to students and within their own workplaces increases. Employers interviewed voiced a range of benefits they received through participation, some that were experienced in 1992–93 and others that are new:

- **Team-building**. When diverse departments or corporate divisions collaborate on school-to-work, they gain a better understanding of their company's organizational structure, and networking among employees is promoted. This benefit builds over time as more departments and employees become involved (Oakland, Cambridge).

- **Growth opportunities for regular employees**. Working with students challenges worksite mentors, particularly employees in line positions that offer limited creativity or management responsibility (Cambridge, Central Point). Similarly, the energy and motivation of student workers can have a competitive effect on the current work force, encouraging employees to pursue additional training (Tulsa).

- **Computer skills**. Several employers commented that they were able to make use of students' computer skills, which are often more up-to-date than those of employees (Central Point, Cambridge, Baltimore).
- **Employee recruitment and training.** School-to-work has proved to be a good source of reliable workers and potential employees, and has provided a way to preview and train future employees in-house (Wayne Township, Tulsa, West Bend).

- **Social benefits**. Employers continued to cite social benefits and the desire to contribute to their community, particularly when teaching students at work reinforces the corporate philosophy (Cambridge, Harvard University; Oakland, health maintenance organizations and other health care providers).

Conclusion

To an extent not foreseeable in 1993, employer participation with the 16 case study sites has expanded markedly. Not only have many employers remained involved, but many more employers are working with students and teachers across most of the case study sites. It is notable that this expansion has mostly happened through a large investment of program staff time in recruiting new employers, maintaining relationships with these partners, and developing several ways for employers to become involved in school-to-work. Finally, the employers associated with the 16 case study sites have demonstrated that sustained commitment to a range of activities is possible, and that employers can continue to benefit from their association with school-to-work.

Chapter 5

Building Work-Based Learning and Connecting Activities

This chapter describes the evolution of work-based learning since 1993 at the case study sites, the challenges to sustaining valuable work-based learning opportunities, and the responses employers and school staff have devised to meet these challenges. The programs' ongoing efforts to link school and work through "connecting" activities are summarized as well. Principal findings about work-based learning and connecting activities suggested by the case study sites include the following:

- Strong work-based learning opportunities for students have been maintained and, in many cases, have been intensified through the joint efforts of school staff and employers.

- New work-based learning activities have been built at most sites, complementing existing activities. Typically, an increased number and a broader range of students are served through these expanded work-based learning opportunities.

- The case study sites have assigned measurable value to students' work-based experiences by paying students for work or by granting school credit, or both.

- The activities, staff, and policies that connect school with work vary across sites, and in many cases are driven by the design of work-based learning activities.

The School-to-Work Opportunities Act (STWOA) of 1994 calls for school-to-work programs "to utilize workplaces as active learning environments in the educational process by making employers joint partners with educators in providing opportunities for all students to participate in high-quality, work-based learning experiences" [Section 3(a)(3) of Public Law 103-239]. Broadly defined, work-based learning is any learning that takes place in the workplace (which may include "workplaces" created in school buildings through school-based enterprises) or draws heavily on real-world examples from work (as is the case in group project work). In practice, work-based learning activities vary considerably in terms of educational and occupational objectives, and in the level of involvement demanded of students, teachers, and employers.

While schools, employers, students, and community members involved with school-to-work can certainly agree on the above definition and goal, these questions remain: Can high-quality work-based learning be sustained?[1] Can it serve all students? The experience of the 16 case study

[1]Our assessment of quality work-based learning opportunities is based on both our update telephone interviews with sites and employers, and our original on-site interviews with students, teachers, and employers, during which we were able to observe a number of worksites. These assessments of quality are not scientific; rather, they are based largely on what site staff and employers told us about the duration and intensity of work-based learning opportunities, what is expected of students on the job, and the monitoring of student performance.

sites strongly suggests that both questions can be answered in the affirmative. However, in sustaining work-based learning, the case study sites have also faced important challenges.

Workplace Learning Opportunities Across the 16 Sites

The 16 case study sites employ a wide range of strategies, varying in duration and intensity, aimed at providing high-quality workplace learning opportunities for all students enrolled in the school-to-work programs. In efforts to both expand and enrich students' workplace experiences, most of these programs are simultaneously further developing their original work-based learning components *and* building new, complementary sets of work-based activities. In addition, the intrinsic value of work experience is being demonstrated through growth in the availability of work-based learning to more students through new school-to-work programs that are "spun off" the original case study sites, and through stand-alone work experience opportunities being developed for students who are not enrolled in comprehensive school-to-work programs.

The work-based learning activities at the 16 case study sites include the following:

- **job shadowing**, during which students follow an employee for one or more days to learn about a specific occupation or industry;

- **service learning and work-related projects**, which integrate community service with structured school-based learning activities, providing students with an opportunity to gather real-world examples and experience while completing a school-based project;

- **internships** during which students work with a specific firm or employee for a specified period of time (typically during the summer or for at least one semester) on a defined set of tasks designed to help the student learn about an industry or specific job;

- **cooperative (co-op) education**, which combines school- and work-based instruction in a specified field; and

- **youth apprenticeships**, which are typically multi-year programs aimed at teaching students job-specific skills through highly structured school- and work-based learning components. Students may also be matched with employee mentors who help them to better understand the world of work through shared experiences, monitoring students' performance, and modeling appropriate workplace behaviors.

Changes in the content and design of work-based learning activities across all sites are summarized in Table 5.1.

Table 5.1

Changes in the Design of Work-Based Learning Activities

Program	Original Workplace Components, 1992–93	New Workplace Components,[a] 1995–96
Career Academies		
Baltimore finance academy	Job shadowing, industry mentors. Internships in summers after grades 11 and 12.	• Grades 10–11: increased job shadowing. • New training plans written with industry input include expanded job descriptions an interview process, and monitoring of sites.
Los Angeles medical magnet	Work-based experiences one day a week. Students rotate through 10 positions in three years.	• Same orientation toward academic instruction. • Assessment of work-based learning showed that one-third of all positions offered limited experience related to work product or project, rather than academic learning; new worksites recruited. • Grades 9–10: work experience may be replaced by clinical lab work with planned expansion of student population. • Grade 12: possible additional health classes and added senior project in place of work-based learning. • UCLA and Drew University provide faculty mentors.
Oakland health academy	Job shadowing, community service, industry mentors. Internships during summer after grade 11; optional during grade 12 school year.	• No change in structure of work-based learning but continued efforts to increase the quality of placements at all sites. • Senior project often encourages employer input. • In some cases, student can earn college credit for work experience. • Four coordinator positions paid through district to monitor summer internships.
Socorro health academy	Half-day co-op placement in facilities in grade 12. (Lengthy job shadowing planned in grade 11.)	• Grade 11: one year of job shadowing for two half-days a week, which prepares students for grade 12 co-ops. • Increased flexibility in developing co-op positions (including part-time and weekend hours) because of busy student schedules, competition from other health programs, and year-round school schedule.

(continued)

Table 5.1 (continued, 2 of 5)

Program	Original Workplace Components, 1992–93	New Workplace Components,[a] 1995–96
Occupational-Academic Cluster Programs		
Central Point	Job shadowing, weekly half-day internships, group work-based projects.	• More structured training plans for internships with an emphasis on skill areas for specific occupations. • Some employers increased intern responsibilities and activities over time. • Internships are available to students outside school-within-a-school through special option credits. • Youth Transition Program started in 1993–94 offers work-based learning opportunities for students with mild disabilities.
Dauphin County	Co-op placements in grade 12.	• Increase in number of students participating in co-op. • Shorter-term internship and job-shadowing opportunities (mainly in health, automotive, carpentry, law enforcement) now available. • Students required to produce work reports. • Greater collaboration between businesses and teachers in order to meet the needs of industry and provide teachers with exposure to workplace.
Portland	Job shadowing, work internships, and youth apprenticeship (planned).	• Grades 9–10: job-shadowing experience provided for virtually all students. • Grades 11–12: internships half a day, once a week, for 6–8 weeks, or longer in same pathways. • Internships linked with occupation-specific pathways courses; training agreements developed for internships. • Planned senior project related to work-based experiences

(continued)

Table 5.1 (continued, 3 of 5)

Program	Original Workplace Components, 1992–93	New Workplace Components,[a] 1995–96
Vocational Vocational Education Programs		
Cambridge vocational restructuring	Youth apprenticeships in building maintenance and elementary education.	• Grade 10: job shadowing in health, business, engineering, arts. • Grades 11–12: Cambridge Service Corps half-day, full-year community problem-solving/service program in which students earn language arts, social science, and technical arts credits. • Youth apprenticeship converted to internships are in health, facilities management, financial services, and elementary education; students continue to participate in reflective seminars. • Senior project being developed for all students.
Fort Collins restructured co-op	Work internships, job shadowing, community service.	• Same options still offered to students who have completed Critical Skills class, which is now required of all students. • Students can earn up to 25 high school credits for work experience, which typically begins the summer after grade 11 and continues during grade 12. • A related class must be taken in school while interning. • Credit earned through internships can be applied to core requirements if all standards listed in extensive training plan are met.
Tech Prep Programs		
Pickens County	None.[b]	• All students now required (by state legislation) to participate in some work experience, including job shadowing, mentoring, service learning, co-op, and/or youth apprenticeship. • Shadowing, service learning, and business activity in schools are increasing rapidly.
Wayne Township	None. (Planned optional co-op placement in grade 12 or summer.)	• Limited number of internships in specialized, nontraditional skill areas available during grade 12 (training plans used). • Tech prep students also encouraged to pursue standard co-op placements

(continued)

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Table 5.1 (continued, 4 of 5)

Program	Original Workplace Components, 1992–93	New Workplace Components,* 1995–96
Youth Apprenticeship Programs		
Fox Cities	Exposure to varied skills; trained industry mentors. Printing curriculum used in technical classroom and work-based instruction. Students at workplaces three days a week.	• Youth apprenticeship opportunities available in more occupational areas. • No change to youth apprenticeship, and work-based learning in new areas modeled after printing (although full-day work schedule may need to be revisited). • Piloting internship option in occupational areas where youth apprenticeship not offered in order to expand work experience opportunities to more students. • State has developed certified co-op option in several occupational areas tied to state and national skill standards.
Little Rock	Training with heating/AC installers; nursing homes and hospitals.	• Paid internships still offered to all youth apprenticeship students, although structure and duration of work experience varies by occupational area and by worksite. • Students presented as "trainees" or entry-level employees ready to acquire skills on the job.
Pickens County	Work-based instruction in specified competencies; 20 hours/week; industry mentors.	• Youth apprenticeship opportunities available in more occupational areas. • Youth apprenticeship students more likely to go directly to worksites four days a week rather than splitting afternoons between work and Career Center classes. • Competencies have increased consistency and quality of work-based learning. • Student's workplace responsibility grows over three years in program.
Tulsa	Work-based activities apply and extend skills taught in the classroom and develop firm-specific skills; industry mentors; work time increases each year.	• Work-based learning compressed into two summers, plus two days per week within three-year program. • Structured work-based learning curricula in which employers continue to develop opportunities for students to learn from experienced workers and practice technical skills at work. • Senior project added, with industry input. Work-based learning in newer school-to-work programs likely to be less intense.

(continued)

Table 5.1 (continued, 5 of 5)

Program	Original Workplace Components, 1992–93	New Workplace Components,[a] 1995–96
West Bend	Exposure to varied skills. Printing curriculum used in technical classroom and work-based instruction. Students at worksite half-day every day.	• Youth apprenticeship opportunities available in more occupational areas. • Little change in youth apprenticeship. Work-based learning in most occupational areas. • Health youth apprenticeship redesigning work-based learning to better meet student need for broad exposure to health careers and basic readiness; plan is for health youth apprenticeship students to participate in job shadowing and general health occupation training in grade 11 and internships in grade 12. • Piloting internship option in occupational areas where youth apprenticeship not offered in order to expand work experience opportunities to more students. • State has developed certified co-op option in several occupational areas tied to state and national skill standards.

SOURCE: MDRC telephone interviews. Original workplace components noted in Pauly, Kopp, and Haimson (1994), pp. 14–17, table 1.3.

NOTES: UCLA = University of California at Los Angeles.

[a]These activities are now offered to students in addition to activities in place in 1992–93, unless otherwise noted.

[b]No work-based learning formally associated with tech prep in 1992–93, although some students enrolled in tech prep classes also subsequently enrolled in co-op and youth apprenticeship programs offering work-based learning experiences.

Expanding Workplace Learning Opportunities

Fourteen of the 16 sites have expanded their work-based learning opportunities in one or more of the following ways:

- creating a sequence of work-based activities through which students progress as they mature and gain academic and technical skills, which often begins with job shadowing (Baltimore, Socorro, Oakland, Portland);

- offering a menu of work-based learning opportunities from which students can choose, often including students not enrolled in the original school-to-work programs (Dauphin County, West Bend, Fox Cities, Central Point, Pickens County Tech Prep);

- structuring students' experience at the workplace to teach academic skills (Fort Collins, Los Angeles); and/or

- bringing industry examples and employers into the classroom through project-based activities (Pickens County Tech Prep, Dauphin County).

Creating a Sequence of Workplace Experiences, Starting with Job Shadowing. Over half of the case study sites have added new work-based learning activities to their original work-based learning component to create a succession of workplace activities through which all students enrolled in the school-to-work program progress. Typically, expansion along this dimension has taken the form of sandwiching an internship experience between introductory job shadowing or rotation activities for students in the early grades (9 and 10), and a "senior project" in the final program year that requires students to collaborate with employers to gather information related to the workplace, industry, or employer's products or services.

The case study sites have created a succession of workplace activities primarily by adding job shadowing near the beginning of students' school-to-work experience. Significant growth in the use of job shadowing serves several purposes. First, shadowing can expose students to work earlier in their high school experience, and help guide school and career choices. For example, students enrolled in Cambridge's Pathways Course in grade 10 complete a job-shadowing exercise in each of four broad occupational areas (health and human services, business and entrepreneurship, industrial technology and engineering, and arts and communication), which helps them to choose an occupational focus in grades 11 and 12.

Second, shadowing offers a low-intensity participation option that may be particularly attractive to employers who are new to school-to-work. For example, in Portland, some employer partners exclusively offer job shadowing to large numbers of students, and school staff have chosen to help employers refine this work-based learning experience rather than ask them to also work with student interns. In general, expanding the range of work-based learning activities creates multiple ways for employers to become involved with training students.

Third, job shadowing provides a training ground for both workplace supervisors and students, easing employers into a relationship with schools and easing students into the world of work. In this way, job shadowing provides an opportunity for school staff to groom students and supervise them more closely during their initial foray into the work world. For example, in Socorro, eleventh grade students and their teacher spend two half-days each week at Thomason Hospital, rotating through a number of different departments; these students are so familiar with the hospital that they often select or develop their own co-op placements in twelfth grade (or switch themselves to different departments as openings become available).

Fourth, since students and school staff often get to know employees in several departments through job-shadowing exercises, employee turnover may be less likely to cause disruption in employer–school relations.

Finally, since job shadowing typically requires less intense participation by employers, school staff, and students, a greater number of students can generally be exposed to the workplace than by most other work-based learning activities. In some places (Baltimore, Oakland, Socorro), students may be associated with the same employer through several activities (shadowing, mentoring, internship) that span two to three years in the program. The result is an experience that approaches the duration of the youth apprenticeship model, in which students are specifically matched with one employer for several years.

At the case study sites, job shadowing is more than just one-shot exposure to a workplace environment or a quick look at a particular industry or field. Job shadowing takes many forms. In some cases, large groups of students visit worksites on a specific day as arranged by program staff. Some class time may be devoted to preparing for workplace visits and completing brief summaries of the day's activities. In other cases, a full-year class is devoted to exploring a wide range of workplaces, and students may take an active role in researching worksites, interviewing employers, and arranging job-shadowing experiences for themselves. Students may be required to keep a journal of their rotation experiences, interview employees, and to compare and contrast different work environments.

Several sites have also added a "senior project" to the final program year in which students research an approved topic of their choice, and are often required to draw upon work-based learning experiences and relationships developed with employers. In this way, final projects can provide another opportunity for students to interact with and learn from employers. For example, in Oakland, students use libraries and other workplace resources, and employers sit on project review panels. In Tulsa, employers helped to design youth apprentices' final projects in which students are given a set of drawings and raw materials and asked to build a work-related model. Completing the project requires mastery of all skills taught by employers and teachers over the three-year program.

Offering Alternative Work-Based Learning Opportunities. Rather than offering a succession of different activities to the same group of students, some programs have developed alternative work-based learning activities from which students can choose. For example, in Dauphin County, in addition to continuing to offer co-op placements, shorter-term internships and job-shadowing opportunities were developed in specific occupational areas to allow more students to gain expo-

sure to workplaces. Dauphin County students are not typically expected to progress from shadowing to internship to co-ops, but rather to choose from different work-based experiences to complement school-based learning in different occupational areas. In this case, it may be that different occupational areas, and local employers engaged in each area, lend themselves to various approaches to work-based learning. Similarly, Pickens County is simultaneously developing job shadowing, mentoring, service learning, summer internship, and co-op activities, in addition to its youth apprenticeship program (which accepts only a limited number of applicants) so that, as required by state law, all tech prep students will have an opportunity to participate in some work experience.

Other programs, such as Central Point, are attempting to segregate workplace experiences from their comprehensive school-to-work program so that students not enrolled in a school-within-a-school can also participate in internship opportunities (through special option credits in which work experience would be closely guided by a school administrator). Similarly, schools associated with Wisconsin's youth apprenticeship programs in Fox Cities and West Bend are piloting internship options in occupational areas not covered by youth apprenticeship in order to offer work experience opportunities to more students, and the state is working to expand and upgrade certified co-op programs. These last examples of efforts to expand work experience opportunities beyond school-to-work clearly demonstrate the belief at the case study sites in the value of exposing all students to the workplace.

Teaching Academic Skills at a Workplace and Bringing Employers into the Classroom. Still another approach to expanding workplace learning opportunities for students is to use the workplace to teach academic skills. For example, students in Fort Collins may now apply credits earned through internships toward core academic requirements if they meet all standards listed on extensive training plans designed by PaCE coordinators, counselors, and academic teachers. Oakland has developed an option in which students will combine extensive field work with developmentally disabled teens with after-school lectures in human development by a community college instructor; students who complete the activity will earn high school psychology credit as well as community college credit in human development.

Finally, the case study sites have expanded work-based learning by bringing employers and examples from the workplace into the classroom through project-based activities and group work. For example, Cambridge has expanded upon its own internship model (formerly known as youth apprenticeship) to develop an upper-level course (for grades 11 and 12) in which students earn language arts, social studies, and technical arts credits by designing and completing a community-based service project aimed at addressing a clearly identified community problem. In Central Point, students whom teachers feel are not ready for internships may complete several work-related projects in the classroom in preparation for actual workplace experience. This option is particularly useful for programs that enroll students in grades 9 and 10 who may not be mature enough to spend long periods of time at a worksite without supervision by school staff.

Enriching Core Work-Based Learning Activities

While work-based learning opportunities have clearly increased substantially at many of the case study sites, the increased number and type of experiences are not replacing more intensive in-

ternships or youth apprenticeships. Rather, in addition to fitting in more intermediate involvement by employers and opportunities for less intense workplace experiences for students, the case study sites are also intensifying their core work-based learning activities, providing rich examples of where it is possible for employers to increase the quality and intensity of work-based learning.

As these programs have matured, many of the case study sites have made concerted efforts to enrich core work-based learning activities. Efforts to intensify students' experiences at work include:

- improving training plans and competency guidelines to shape students' work experience;
- using employer feedback and school-initiated inquiry to monitor the quality of students' work-based experience;
- assigning value to work-based learning by paying students and/or offering high school or college credit for work experience by making workplace activities an important part of course curricula; and
- dropping worksite placements that do not appear to be providing high-quality work experiences.

Focus on Training Plans. All 16 case study sites use training plans to communicate work experience expectations to employers, students, and teachers. Since 1992–93, many sites have worked with their employer partners to enhance their training plans with more detailed job descriptions and delineation of both technical and general skills (for example, teamwork, communication, and so on) needed on the job. And, as school-to-work expands to new occupational areas, training plans are adapted to stress skills germane to each of those areas. In addition, when training plans are applied to all employers and used as a benchmark of student experience, the consistency of students' work experience across a range of worksites is likely to increase. For example, Oakland has made a concerted effort since 1993 to improve the quality of students' summer work experience by requiring that all internships be structured to demonstrate clear pathways for career development and provide some cross-training in different areas. Similarly, some larger employers have developed highly structured training plans that are used organization-wide to shape student internships.

Many sites choose to list competencies or the intended result of work experience, rather than specify the exact activity that students must complete in order to attain the competency. In this way, a range of employers in each occupational area can design work experience under the guidelines, and employers are not overburdened with specific requirements. On the other hand, some sites — particularly youth apprenticeship programs such as those in Tulsa, Fox Cities, and West Bend — have developed extraordinarily detailed training plans that set the curriculum for workplace activity.

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Ongoing Monitoring. Staff at the 16 case study sites cited monitoring student work experience activities as one of their most important ongoing administrative responsibilities. It is clear from their experience that good-quality work placements must be continually monitored. Monitoring is accomplished, and thus program quality maintained, through regular school staff visits to the workplace, careful attention to employer feedback about student performance (generated informally via employer contacts and formally via training plans that outline tasks and skills to be accomplished by students on the job), and school-initiated inquiry. A variety of school staff across the 16 sites are responsible for monitoring student work experience, including teachers of technical classes, co-op teachers or coordinators, and specially designated work-based learning or school-to-work coordinators (who may not have discrete teaching responsibilities). Most sites make periodic checks on all employers and the quality of work-based learning activities, and several staff noted that they've made extra visits to employers who did not appear to be using students productively or where students express dissatisfaction with a placement. For example, with support from a regional foundation, Los Angeles undertook a systematic assessment of their work-based learning slots, and subsequently dropped placements that were not providing opportunities consistent with the program's intent that students master academic skills on the job. Central Point's school-to-work coordinator contacted each of Crater High School's more than 400 employer partners to confirm their interest in providing high-quality internship positions for students.

As programs mature, training worksite supervisors continues to be an important way to maintain and monitor good-quality placements. As was the case in 1992–93, while all case study sites acknowledge the importance of educating employer partners on how to work with high school students, and what to expect of students, they use different approaches to training worksite supervisors. Programs that invested heavily in training employees assigned to work with students during start-up mostly appear to continue to offer training opportunities targeted at new worksite supervisors. In some other cases, employees and their supervisors who were trained by school staff during program start-up may take on the responsibility for training new employees in-house. Other programs have continued to rely on informal "training" meetings with new employer partners to prepare employers and help them work effectively with students.

Assigning Value to Work. In all 16 case study sites, students are paid for work and/or receive school credit. While many sites offered credit or mandated pay for student work experience in 1992–93, all sites do so now, and some sites have expanded or adjusted the ways in which student work is "compensated." Assigning value to work experience appears to promote high-quality placements. Many sites and employer partners interviewed indicated that asking employers to pay student workers can increase job quality — because many businesses are likely to use a paid employee more productively than a volunteer. From the students' perspective, economic necessity may require that they contribute to family income; such students may be unable to give up an existing job in order to take advantage of a work placement, unless the placement also generates income. However, even when work-based learning is paid, students may want to keep existing jobs rather than accept school-provided internships. In areas where students are not permitted to hold more than one work permit at a time (Wayne Township, Fort Collins), they must choose between work experience and other job opportunities. In some instances, school staff have accommodated student work by arranging complementary, unpaid volunteer experience to expose students to a specific occupational area (Oakland, Socorro).

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Similarly, students are more likely to take their work experience seriously if their job performance is used to determine a grade in school. In Oakland, students can earn credit toward community college matriculation by completing specialized work placements and complementary school-based learning. In most instances, employer reports on students' workplace activities, along with students' reflective writing and/or contributions during school-based seminars related to workplace experiences, are used to assign grades for student performance.

Dropping Unsatisfactory Worksites. Critically, most sites indicated that they had dropped worksite placements that were not providing high-quality work experiences for students. This activity seems to indicate the importance that program staff puts on high-quality work placements, and confidence in the staff's ability to secure good placements.

Commitment to high-quality placements that offer students the opportunity to learn technical skills may limit program growth, particularly if students are heavily screened before entering the workplace to ensure that they can meet the demands of work-based learning. For example, strict selection criteria (including a test of mechanical reasoning and manual dexterity, teacher recommendation, grades, and attendance records) are used by Pickens County's youth apprenticeship program; only one-third of the students who applied for youth apprenticeship positions gained admission to the program in 1995. In Little Rock, more subjective criteria are applied, along with teacher recommendations, grades, and attendance records, to determine whether students can function well at the workplace; here, most students enrolled in the corresponding vocational classes are not eligible to participate in youth apprenticeship opportunities. Yet, in both sites, employers have been very satisfied with the quality of students placed on the job.

Challenges to Building High-Quality Work-Based Learning

The case study sites' successful efforts to expand and intensify work-based learning opportunities have overcome several challenges. First, some sites have experienced difficulty in carving out sufficient time for work-based learning activities. In particular, initiatives that aim to provide significant amounts of on-the-job training have faced scheduling difficulties due to the large amount of time required to cover both classroom and workplace learning. In Pickens County, students in the youth apprenticeship program typically now go straight to their worksite four afternoons a week and attend vocational classes one afternoon at the Career Center, rather than try to split every afternoon between work and school (as was the case in 1992–93); youth apprentices still take all academic classes at their home high school during the morning. Even programs that place students in internships for shorter periods of time have faced scheduling challenges, particularly when large numbers of students are participating in internships. For example, in Portland, the current class schedule permits students to intern for only one half-day a week (on the day when school has a delayed opening to accommodate teacher meetings); when internship opportunities are scheduled on another day, students may request permission to miss classes. Some employers have said that students need more time at the worksite.

Second, time constraints affect students who are trying to balance traditional school requirements, electives, work-based opportunities, extracurricular activities, and, in some cases, jobs acquired independently. In Socorro, where work experience takes place during the senior year, stu-

dents must schedule three consecutive free periods to enroll in the cooperative education class; students who are active in extra-curricular clubs or sports teams, who are in elective or honors classes (as was the case for one student who wanted to take Latin in her senior year), or who work many hours at other jobs may choose to complete a senior research project rather than participate in the co-op experience.

Connecting Activities

"Connecting activities" include a wide range of efforts by schools and employers to link school with work and to link the learning that takes place in both settings. Connecting activities include creating work-based learning opportunities for students, combining classroom instruction and workplace experience to create an enriched learning experience, coordinating employer and school involvement and creating ways for school and industry to communicate regularly and easily, encouraging active business involvement in school- and work-based activities, and providing technical assistance to teachers and employers. Connecting activities may also extend beyond high school, by helping program graduates find work and/or continue their education or training, and by linking school-to-work programs with existing employer and industry strategies to upgrade worker skills. Connecting activities may also include evaluating post-program outcomes to gauge program success.

While staff at all 16 of the programs studied acknowledge the need for connecting activities — and are aware of the federal legislation (STWOA) that requires these activities — many are still struggling to create substantive and permanent linkages between school and work. Matching students with work-based opportunities creates the basis for connecting activities. As explored above, all 16 sites provide opportunities for students to travel from school to a worksite, spend time at a workplace, and gain some exposure to the world of work. However, work-based learning opportunities vary considerably, ranging from job shadowing or short-term internship experience (Central Point) to building sustained relationships with one employer over several years while being engaged in skill-building (Tulsa).

Similarly, the activities, staff, and requirements that connect school with work vary by program design. And, some program designs present situations in which work-based learning may inadvertently grow independently and in isolation from classroom activities and learning. In some instances (as discussed above), separating work-based experiences and comprehensive school-to-work programs may open up opportunities for more students, including those who are not enrolled in school-to-work. However, when school- and work-based learning are separated, special attention to connecting activities is required so that students do not lose the opportunity to integrate different experiences into a cohesive whole, and have those experiences reinforced. For example, in cases where students' core work experience takes place during the summer (and is thus separated in time from school-based learning), expanded work-related experiences (such as job shadowing and employer presentations during the school year), extra coordination and communication between school staff and employers, and periodic seminars or meetings for all students scheduled outside of the school year are used to reinforce connections between school-based experiences and summer work-

place activities (Oakland, Baltimore). In other instances, work-based learning experiences are being developed for large numbers of students by nonteaching staff (Portland, Central Point, Fort Collins). Students engaged in work experience may or may not have a common class together. When they do, teachers are challenged to unify a diverse set of work experiences with school-based work; when they do not, it is difficult to connect work-based experiences with lessons taught in school, and nonteacher school-based coordinators are generally left to focus on reinforcing general workplace skills. Portland in particular has found that providing students with opportunities to reflect upon their workplace experiences helps to connect school- and work-based learning. While it will certainly take considerable time to design classroom activities that reinforce and build on the new skills that students develop at the worksite, written assignments about their workplace experiences (written reflection) and participation in weekly seminars (oral reflection) constitute the first phase of efforts to connect classroom and work-based activities.

Finally, some sites have chosen to directly connect school- and work-based learning through the development of service learning courses in which students perform community service that is developed to complement structured, school-based learning. Such courses also include time for reflection on the connection between the service experience and academic learning (Pickens County, Cambridge).

Conclusion

The 16 case study sites demonstrate that it is possible to maintain high-quality work placements and expand work-based learning opportunities to serve a broad range of employer and student needs. The programs featured here are clearly meeting the demands of students for work-based learning opportunities, and have overcome challenges in doing so. In addition, the case study sites demonstrate that it is possible to implement meaningful connecting activities — although, in both instances, significant amounts of staff time are required to make work-based learning function well and connecting activities productive.

Chapter 6

The Post-Secondary Challenge

The 16 programs in this study have worked hard to emphasize the need for post-secondary education and to help prepare students to access a range of post-secondary education options. However, the experience of these pioneering initiatives suggests that it has been difficult to build specific post-secondary linkages with their high school programs. The principal conclusions of this chapter are:

- The development of formal post-secondary linkages has generally been a low priority for school-to-work partnerships. Questions remain about the most useful strategy for developing such linkages given that formal post-secondary components have been characterized by low student retention and that articulation agreements continue to be minimally utilized.

- Informal program supports — such as counseling participating students to take college-required classes, providing extra tutoring to enable them to succeed in these classes, and actively supporting them through the college application process — appear to be easier to implement than formal linkages between secondary and post-secondary institutions and important to helping students get into college.

- The post-secondary institution continues to be a peripheral player in school-to-work partnerships. Two-year colleges face a mix of incentives and disincentives to become more involved. Efforts to leverage significant changes in their level of involvement appear to be beyond the reach of local school-to-work initiatives and require action at the state level.

Despite its somewhat misleading name, the school-to-work movement aims to provide young people with better preparation for and connections to post-secondary education in order to develop their capacity for life-long work, rather than focusing solely on job placement after high school. When instituting curricular changes and work-based learning opportunities, school-to-work program operators are well aware of the need to assure that participating students can meet traditional college entrance standards and are well prepared for post-secondary studies. This is both because doing so is in the best interest of students, and because college must be a viable option if school-to-work is to be accepted as part of mainstream education systems. The experience of the 16 initiatives in this study — as well as others — suggests that school-to-work programs are finding some success in making this connection and that many participating students who were not identified as "college prospects" when they started the programs are making the transition to two- and four-year colleges. Consequently, concerns that school-to-work initiatives would be viewed as a second-tier track for non-college-bound students have not materialized, because the majority of participating students in most programs have continued on to college.

Although students are making the transition to post-secondary studies, the collective experience of the 16 case study programs reveals that post-secondary linkages often continue to be an underdeveloped component of school-to-work programs and that efforts in this area have generally been a low priority for schools, employers, and even post-secondary institutions. While it appears challenging to design formal linkages that many students will use, more informal efforts by program staff to expose students to college, assure that they take college-required courses, and actively support them through the college application process appear to be important interventions.

Strategies for Building Linkages to Post-Secondary Education

The experiences of the 16 school-to-work initiatives in MDRC's study provide some insights on the challenges to building post-secondary linkages and offer examples of some promising approaches, including one or more of the following:

- incorporating the post-secondary years as a formal component of the program;
- developing articulation agreements that integrate secondary and post-secondary courses into a coherent sequence;
- incorporating college courses into the senior high school year; and
- providing extra counseling to assure that students are prepared to enter college and to support them through the college (and financial aid) application process.

These varied approaches to linking students to post-secondary learning opportunities are discussed below.

Inclusion of Post-Secondary Years in Program Models

Formal inclusion of the post-secondary years is typically found only in youth apprenticeship programs, which, relative to other school-to-work models, have a greater focus on the development of specific technical skills. Two of the 16 programs studied — the youth apprenticeship programs in Tulsa and Pickens County — were initially designed to formally include two post-secondary years of education as part of the program. (See Kopp and Kazis, 1995, for additional examples.)[1]

While programs with a defined post-secondary component offer students significant potential benefits — including formal opportunities to combine work and post-secondary education, tuition reimbursement benefits from participating employers, and continued staff support — this program design has proven difficult to put into place. Both the Tulsa and Pickens County programs have encountered difficulties in keeping students involved. In fact, as of the 1995–96 school year,

[1]While tech prep "2+2" programs (including the two in this study) aim to develop curricula sequences in applied academics and technical training bridging the secondary and post-secondary years, this is different from expecting students to matriculate to and complete a defined program with a specific post-secondary component.

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the Tulsa youth apprenticeship program has been re-designed so that it no longer formally includes two years at Tulsa Junior College. This change was made because students did not seem willing to stay with the program for four years when they might be out earning a salary after only two years of technical training. In the revised program, students participate for three years — eleventh and twelfth grades. and a thirteenth year during which they receive additional technical instruction combined with work-based learning. Students can still earn up to 25 credits at Tulsa Junior College if they choose to enroll after completing the program.

The Pickens County Youth Apprenticeship Program has maintained its three-year program incorporating grade 12 and two years at Tri-County Technical College, and is working to strengthen the post-secondary component. As in Tulsa, program retention after high school has been lower than expected. During the youth apprenticeship program's first three years of operation, only 3 of the 19 students who started the program in high school completed the entire three-year sequence. While most of the students who left the program remained in college, they stopped officially participating in the youth apprenticeship program, reportedly because of changes in career interests or personal problems that interfered with participation. Most of the attrition seems to take place during the transition from high school to college, or during the post-secondary years.

In recent years, Tri-County Technical College has made an effort to develop the post-secondary component of the program. A work-based learning coordinator has been identified to continue to support and coordinate efforts started by the school district's youth apprenticeship coordinator. In addition, Tri-County has identified school-to-work advisors for each division within the college who are responsible for providing a link — from a curriculum perspective — between the college and participating employers (for both youth apprenticeship and co-operative education programs). These advisors work with business liaisons to assure that students' activities at the workplace continue to provide training experience that is related to their learning at college. Participating students can receive articulated credit for specifically identified occupational high school course work and for work-based learning upon enrolling at the college, but once they are in college, they do not receive credit in addition to their regular course for learning on the job.

A third youth apprenticeship program — Fox Cities — has had success in developing an optional third-year curriculum for students in its printing program. An individualized "transition" curriculum has been created to enable printing youth apprenticeship graduates to earn an associate's degree within one calendar year from high school graduation. Almost half of the program graduates have pursued this option and most have continued to work for the employers with whom they were placed (although they do not receive credit for work).[2] Key to the success of this third year may be its optional nature and the fact that the students have already been taking both academic and technical courses at the technical college during the eleventh and twelfth grades. Unfortunately, similar arrangements have not yet been developed for youth apprentices in other occupational areas.

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[2]Thanks to a well-defined articulation agreement, the three students who have gone on from the Associate of Arts (AA) program to a four-year program at the University of Wisconsin–Stout have entered as juniors (meaning that the youth apprenticeship program has saved them one year of study and tuition bills in working toward a four-year degree).

Articulation Agreements

Articulation agreements between high schools and post-secondary institutions enable students to earn college credits for academic and technical subjects based on course work (and sometimes work-based learning) completed while in high school. Since *Home-Grown Lessons* was written, more programs have developed articulation agreements, but issues around student use of such agreements remain. As of the 1995–96 school year, nearly all of the 16 programs have articulation agreements in place (compared with 9 in 1992–93) and many have expanded the curricula areas for which it is possible to earn articulated credits. However, student use of these agreements — or the "take-up rate" — remains low.

One has to question why there appears to be little concrete pay-off to students, colleges, or secondary schools despite the continued effort devoted to developing such arrangements. As discussed in *Home-Grown Lessons*, articulation agreements are expected to produce great benefits including faster completion of a technical degree/credential (thereby saving money for students and colleges); increased enrollment in community colleges; increased retention in college (i.e., the likelihood that students will stay in school) since students should not be repeating material and can complete a degree in less time; and increased communication between high school and community college educators, leading to stronger curricula and instruction. The experience of the programs in this study suggests that these benefits are not materializing to any significant degree (with the exception of the last one in several places). Possible explanations for this situation were identified in *Home-Grown Lessons,* and largely appear to remain true today:

- Students must meet numerous requirements to receive the articulation credits and they may not be organized or motivated enough to meet these requirements. Many students may not be sure what they need to do to receive articulated credit since the availability of information on these procedures is uneven, particularly at the post-secondary level where the credits need to be obtained.

- While the number of courses for which students can earn articulated credit has increased, it is unlikely that students will earn enough credits to shorten the time it takes to earn a degree (although they may be able to save some tuition costs).[3]

- Articulation credits have limited "portability." Many four-year colleges do not accept articulation credits from community colleges, and, in many states, articulation agreements can be used only at the college that signed the agreement with the high school.

This latter issue has emerged as a significant impediment to reaping benefits from articulation agreements. Many participating students decide to continue their education because school-to-work

[3]As discussed earlier, the Fox Cities youth apprenticeship program in printing is an exception to this due to the development of a one-year individualized curricula.

at the secondary level helps them develop more defined career interests, greater skills, and confidence. Some aim straight for four-year institutions, so articulation agreements with community colleges are not useful to them. Others may not be interested in the local two-year college — even if it has an articulation agreement with their high school — if they can access another two-year college with a stronger program and reputation.

Indiana is trying to address this mismatch between student interest and local colleges as well as the "portability" issue by promoting regional planning of articulation agreements. The state has been divided into 14 regions for the purpose of distributing Perkins funding, and secondary and post-secondary institutions within each region are coming together to discuss broad articulation agreements. This arrangement would aid the Wayne Township tech prep program to connect students to college since many choose to attend the two-year Purdue technology programs at Indiana University-Purdue University at Indianapolis (IUPUI). These two-year technology programs at IUPUI may be converted to a four-year technology college degree program. Other students may continue to choose two-year or shorter industry-specific, technical programs at Indiana Vocational Technical College, where more traditional articulation agreements already exist.

Although Indiana and some other states are moving in this direction, the current lack of articulation between many two- and four-year post-secondary institutions has also emerged as a significant issue as school-to-work participants set their sights on more advanced degrees. School-to-work staff are reluctant to steer students toward two-year institutions if their community college-level work is unlikely to transfer to a four-year degree program, should students decide to pursue one (Kopp and Kazis, 1995). For example, the Tulsa Chamber of Commerce and the Tulsa Junior College are still fighting the Oklahoma State University system's rule against accepting Tulsa Junior College credit for technical courses toward a university degree. This rule makes the youth apprenticeship program's original inclusion of two post-secondary years at the junior college less attractive to aspiring students.

Helping Young People to Connect to Colleges

Many programs' activities in the post-secondary area have emphasized guiding students' preparation for college and supporting their efforts to gain access to college rather than building a "seamless whole" between specific sequences of secondary and post-secondary instruction through formal linkages. This approach is easier to undertake because it requires few, if any, changes on the part of the colleges and there are no concerns about mismatches between student choice and targeted colleges: students can take their heightened interest in going to college, their stronger preparation, and the extra support in the application process and apply wherever they want.

Strategies that some of the 16 case study sites have used to help connect young people to colleges include:

- **Counseling students to take higher-level math, science, and other courses (such as a foreign language) that are required by four-year colleges**. In many cases, participating students are capable of completing these higher-level

courses — particularly if the program provides some tutoring assistance to ensure their success — but they are not aware of the need to take these courses to gain college admission. Many school-to-work operators talk about the need to be careful in scheduling school-within-a-school classes so participating students' choice of higher-level courses and college-oriented electives (including advanced placement courses) does not conflict with school-to-work courses. Some programs, such as the Oakland career academy, include Spanish (or other language) courses in its school-within-a-school.

- **Arranging for students to take college courses while in high school (either on-site at the high school or at the college)**. These arrangements typically enable students to earn college credits free of charge and help introduce them to the rigors of college courses and the college environment. The Baltimore finance academy has arranged for seniors to take an introductory finance class at Morgan State University. The Oakland health academy has arranged for several courses to be offered at the high school as well as for students to access courses at the local community college.

- **Introducing students and colleges to each other**. This is done by taking students on tours of colleges and explaining to college admissions staff the unique and innovative education that the students have received in the program, since they may not have the traditional transcript the colleges usually want. The Fox Cities youth apprenticeship program has been very aggressive in contacting the colleges and universities to which participating students apply, to educate them about the program and to offer assistance in how to assess the student's application. Program staff have found that it has been helpful to warn admissions staff in advance that they are going to see distinctive transcripts before they get the application.

- **Providing additional counseling services to students as they complete college and financial aid applications**. This is an important support since many large high schools have only one guidance counselor for every 400 students, and students who are not in a traditional college-prep track often get insufficient attention in the college application process. For example, Baltimore career academy staff assist students in the college application process and require that all students complete an application for Baltimore City Community College. Acceptance by the community college (which is automatic for all academy graduates) is seen as a fallback for those who are not accepted into other post-secondary institutions or who do not choose to leave the area. (Last year, 40 percent of the program's graduates went to the community college.)

While these less formal efforts do not integrate secondary and post-secondary instruction, they appear to be important to improving young people's access to college — particularly for students who had not been clearly identified as four-year-college-bound or who were not automati-

cally guided in this direction by guidance counselors. In addition, through such efforts, some program staff have been able to develop good relationships with college staff that have led to joint curricula efforts and learning opportunities for faculty and may help pave the way for more active partnerships.

College Participation in School-to-Work

In the early years of school-to-work, efforts focused on developing initiatives for the secondary-school years, and high schools were the primary "drivers" behind program development. Creating post-secondary components, developing sequences of instruction, and introducing innovative instructional techniques at the college level were put on the "back burner." Now that school-to-work is under way and many programs have graduates who have continued into post-secondary education, attention should be turning to post-secondary institutions — particularly two-year colleges, most of which are well suited to deliver technical skill training. Yet, their involvement still appears to be peripheral. Within the school-to-work partnerships supporting the 16 programs included in this study, post-secondary institutions have been a passive partner in most instances; notable exceptions are discussed below. Two-year colleges may assess how secondary courses line up with college courses to award articulated credit and allow high school students to take advanced college courses, but they typically are not making changes in their pedagogy or curricula to continue the innovations implemented at the secondary level. Four-year institutions have rarely been involved.

Specific contradictory pulls and pushes can influence community colleges' motivation to play a key role in school-to-work.[4] Incentives include:

- the prospect of attracting a steady stream of better-prepared students for full-time study who will require less (or no) remediation;
- expanding the pool of high school graduates who are interested in and can perform well in occupationally focused programs;
- potential spill-over benefits to the nondegree divisions of the college from active involvement in school-to-work initiatives that engage employers in intensive ways; and
- benefits in relations with state legislatures and other influential institutions from participating in what many believe to be important education reform.

In spite of these incentives, certain financial and structural issues can make it difficult for colleges to have a serious institutional commitment to school-to-work. Most critically, funding

[4]This discussion on incentives and disincentives draws from *Two-year Colleges: What Role Will They Play in Improving the School to Work Transition*, by Richard Kazis, Jobs for the Future, prepared for the American Association of Community Colleges Tech Prep Roundtable, October 29–30, 1993.

mechanisms for community colleges are based on enrollments in most states. Flat reimbursements for full-time equivalent enrollments rewards volume but discourages investment in expensive, highly sequenced programs of study and counseling and academic supports that students may need to complete a degree. Second, the use of the workplace as a structured learning place and opportunity for contextual learning is foreign to most community colleges. Even at technical colleges, enrollment in co-op education programs is typically quite limited. Additionally, as institutions, community colleges typically do not plan and respond as single coherent organizations. While a growing aspect of many community colleges' business is the noncredit, nondegree programs that concentrate on customized training for area employers, the staff involved with these efforts (who have the experience and interest in developing close relationships with employers) have little contact with staff on the degree-granting side of the institution — that is, staff who plan programs of study for post-secondary students. Thus, the lessons learned about what employers need in new employees and in skills training programs do not influence the degree-granting programs. On a practical level, many community colleges are already oversubscribed in the occupational areas (particularly health) targeted by local school-to-work programs, so they have little incentive to cooperate with high schools to create even more demand.

As discussed further in the next section, states can play a critical role in facilitating the development of stronger bridges between secondary and post-secondary instruction. A major lever for change could be reforming funding mechanisms to encourage community college investment in carefully structured sequences of courses, student supports such as counseling to promote retention, introduction of work-based learning and other new instructional techniques, and the hiring of more full-time staff to allow for greater coordination and coherence among course offerings. At the four-year college level, some states are promoting the development of competency-based admissions systems in support of school-to-work innovations since participating students often gain skills and knowledge outside of the traditional course "boxes" for which colleges typically look.

While post-secondary participation in school-to-work has certainly been more limited than that of secondary schools, districts, and local and community partners (including employers), colleges are significant players in a few of the 16 school-to-work initiatives in this study. For example, the Fox Valley Technical College is centrally involved in the Fox Cities youth apprenticeship program, and actually provides all the technical and academic instruction to participating students. Tri-County Technical College has played a role in all aspects of the Pickens County Tech Prep Program's development as well as that of other tech prep initiatives in surrounding districts. Tri-County Technical College is one of the partners within the local Tech Prep school-to-work initiative; the college houses consortium staff and provides technical assistance to all partners within the consortium. In addition — as a partner in the Pickens County Youth Apprenticeship Program — it has continued to build on its ability to help students make the transition from high school to post-secondary instruction in their chosen field. In connection with the Portland cluster program, staff from local community colleges and the high school are working on articulation agreements for each of the six career pathway areas. The participating colleges have taken on responsibility for developing new curriculum, with plans calling for the colleges to create a course that logically follows from the high school-level curricula in each of the six areas. Earlier, college staff were also involved in the curriculum development for the initiative's core ninth grade program.

Conclusion

While preparing young people for post-secondary education is a central goal of school-to-work programs, the logistical challenges of building linkages between secondary and post-secondary institutions so that learning becomes a "seamless whole" are significant. The experience that the 16 case study sites have had with post-secondary linkages and more informal efforts to help students connect to college raises questions about the best model for such linkages and connections and identifying the incentives for making this piece of school-to-work a priority. The more informal efforts to guide and prepare students for college access have been the focus of many programs' efforts. Such activities are generally easier for secondary-level staff to undertake than attempting to build more formal bridges to post-secondary institutions, and may suit more students' interests better than tightly sequenced articulation agreements. Community colleges have a mix of incentives and disincentives to participating in school-to-work. Four-year colleges have focused only on school-to-work around the issues of alternative assessment of student qualifications and articulation of credits earned at two-year colleges. For the most part, employers have not been actively involved in the discussions and development of post-secondary linkages. The incentives are mixed for them as well: While they recognize the need for post-secondary credentials, college enrollment can mean that they lose the individual students whom they have trained and mentored (unless they can combine work and school at a local college).

As discussed further in Chapter 7, states need to play a central role in the development of post-secondary connections because of their leverage in the state community college and university systems. Tipping the balance of incentives and disincentives to encourage greater community college participation will require state involvement. Many issues that need to be addressed are beyond the reach of individual school-to-work programs and districts.

As post-secondary linkages are developed and colleges become more central school-to-work players, efforts to promote post-secondary retention need to be included. Program staff raised concerns about what happens to students once they get to college. They are increasingly identifying the need to follow-up with and support students through this transition. Lack of pedagogical changes at the post-secondary level, financial pressures, and "cultural" issues can make it difficult for many students to stay in college.

Chapter 7

State and Federal Policies: How They Affect Leading-Edge Programs

This chapter summarizes what the 16 school-to-work initiatives told us about their evolving relationship with federal and state entities interested in promoting school-to-work and school reform. These experiences suggest areas in which larger public entities can promote school-to-work, indicate several implications for future federal and state policies, and illuminate instances where federal or state requirements may inadvertently hinder program development. In summary:

- It appears that local programs can benefit substantially from state and federal assistance for coordinating with post-secondary institutions; developing portable credentials; supporting staff training, curriculum development, and employer education and outreach; building networks; and providing financial support.

- Local programs could benefit from additional support in expanding post-secondary enrollments and establishing portable credentials, and state and federal actors need to be aware of overarching policies and practices that may hinder local program development efforts, such as policies that determine course requirements for high school graduation, required course content, and child labor laws that may limit internships.

- Most sites continue to use special funding to coordinate school-to-work activities, to develop new program components, and to help pay for staff to maintain employer relations and work-based learning. While it is difficult to speculate on the effects of a withdrawal of special funding, it appears likely that most institutionalized programs would remain in operation, but that the pace of innovation and development would be slowed.

The School-to-Work Opportunities Act (STWOA) authorized new federal funding to leverage the creation of local school-to-work initiatives and move toward the creation of systems of effective school programs in each state. At the federal level, the STWOA also created the National School-to-Work Office and the Learning and Information Center to help increase the capacity of school-to-work professionals and to help implement state and local systems nationwide by brokering a wide range of information and training on school-to-work. The STWOA asks states to play a key role in promoting school-to-work systems, both by using these new resources to aid the development of initiatives at the local level and by directing more traditional regulatory, service, and policy efforts toward this goal.

Overall, school-to-work system-building efforts have changed the rules of the game by reinforcing local ownership of education reform and pushing program resources and responsibility down to the local level. State officials engaged in promoting school-to-work may encounter tension between system-building efforts and local control of education initiatives, particularly if a small

portion of public education funding comes through the state. Nationwide, state education budgets are being reduced, making it difficult for state agency staff to assist in the development of local initiatives. Even within this environment, federal and state policies and practices can play a positive role in helping to expand and sustain local initiatives.

As stated throughout, this report documents the approaches that local promising school-to-work initiatives have taken to build up and sustain their programs. The experiences of these 16 sites demonstrate what is possible and highlight challenges faced along the way, but cannot necessarily be generalized to all school-to-work initiatives. This is true for this chapter — perhaps more so than the others — because the "bottom-up" approach of learning from local program operators and employers was used to gather information on the role state and federal entities play in helping these initiatives to grow. State and federal administrators were *not* interviewed, and, in general, this topic was not the primary focus of our discussions at the local level. However, while many state- and federal-level "stories" clearly are not recorded here, the issues raised by local program staff and employers appear to be significant.

This chapter begins by summarizing the major areas in which the federal government and particularly states can help to promote the development and expansion of school-to-work. First, nonfinancial assistance — including building post-secondary connections, hiring staff, developing curricula, and mounting employer recruitment and public education campaigns — are described. Thirteen of the sixteen case study sites have received financial assistance from state and/or federal sources to develop, sustain, and build their programs since 1992–93; a summary of how these funds have been used is presented here. Examples in which state and federal policies and requirements were cited as possibly inhibiting program development are also covered. The chapter concludes with a brief discussion of the costs associated with running the 16 school-to-work initiatives studied here.

How Can the State and Federal Governments Support School-to-Work?

While most of the 16 case study sites were initiated at the local level — and existed prior to the STWOA and even prior to many states' school-to-work legislation — these programs operate today within a larger environment that is infused with new resources, ideas, and policies aimed at supporting the growth of school-to-work "from above." Since 1994, more federal funds and increased technical assistance have been made available, and many states have been actively promoting school-to-work systems. In what ways has this changing environment aided local programs? Where have overarching requirements, policies, and governance structures hindered local initiatives?

States and the federal government have provided services and financial assistance that local programs cite as promoting their efforts to sustain and expand school-to-work. Overall, state and federal interest in school-to-work and related activities has served to legitimize and strengthen local programs. In many areas, local initiatives are aligned with national and state efforts to promote school- and work-based learning and activities that connect school and work, rather than as isolated

district reform efforts. Program staff told us about several ways in which larger public entities could help them develop and expand local initiatives:

- building post-secondary connections — for example, through regional articulation agreements and adapting college entrance requirements;
- developing portable credentials;
- providing staff training and curriculum development;
- coordinating employer education and outreach campaigns;
- creating networks of practitioners;
- linking school-to-work with other school reform efforts; and
- contributing financial assistance.

Building Post-Secondary Connections

Several of the case study sites noted the importance of federal and state-level assistance in areas where local schools, districts, and even partnerships may not have jurisdiction to set policy and establish new practices. Jurisdictional issues typically arise in the related areas of building connections to post-secondary institutions and creating alternate certification for students who successfully complete school-to-work programs (see *Developing Portable Credentials*, below). States can assist in building connections between school-to-work initiatives in secondary schools and post-secondary institutions by creating working groups of secondary schools and two- and four-year colleges; these working groups could develop regional articulation agreements, revise college entrance requirements to accommodate school-to-work innovations, and promote both school-to-work learning approaches at the post-secondary level and an increased use of student supports in college such as counseling by college staff familiar with school-to-work programs.

As discussed in Chapter 6, many of the case study sites have developed clear pathways for students into post-secondary alternatives through articulation agreements, and in several instances, state tech prep consortia have promoted and encouraged this development (Socorro). However, such alternatives are typically limited to a few local community colleges, possibly to a local university, and perhaps even to a specific set of departments within the selected post-secondary institutions. Thus, while articulation agreements exist, post-secondary options to which students can apply such credits are usually limited, and this appears to contribute to low rates of utilization by students. Several states in which the case study sites are located have addressed this issue by expanding the scope of articulation and linking secondary schools with more post-secondary institutions. For example, in Indiana broad articulation agreements are being discussed by secondary and post-secondary institutions located within each of 14 regions in the state. On a related issue, states can

facilitate the acceptance of articulation credits by four-year post-secondary institutions in order to encourage students to pursue additional post-secondary learning.

States also play an important role in establishing admissions policies and entrance requirements for public universities. Many such policies currently rely on traditional measures of student achievement in high school such as grades earned in specific academic subjects, and thus may not take into account student mastery of broad concepts and workplace skills through participation in school-to-work initiatives. The Oregon State System of Higher Education is developing a competency-based post-secondary admissions system (known as PASS) that could place students who attain performance-based certificates from school-to-work programs on an equal footing with students enrolled in more traditional course offerings that are now often targeted in the admissions policies of four-year institutions. Under the PASS system, high school students will demonstrate their knowledge and skills in six content areas, and the proficiency-based college admissions system is being designed to identify the knowledge and skills needed to succeed in college. The State of Wisconsin is also piloting competency-based admissions within the University of Wisconsin system, but not on campuses in communities served directly by the Fox Cities or West Bend youth apprenticeship programs. In Wisconsin, local school-to-work program staff noted that further assistance from state staff would be useful in educating college admissions staff about youth apprenticeship and how college applications from program graduates might differ from other, traditional applications.

Although not yet widely seen in the case study sites, states can also play a role in extending school-to-work approaches to the post-secondary level. As discussed in Chapter 6, states could play a greater role in encouraging community colleges to invest in adopting promising school-to-work practices demonstrated within secondary schools, including increased student support activities to encourage students to stay in school, the use of work-based learning and other innovative instructional techniques, and the hiring of staff to ease students' transition from secondary to post-secondary instruction.

These activities suggest that states should continue to assist in the development of linkages with post-secondary institutions. Such assistance includes helping to educate and inform college admissions staff and department heads about school-to-work approaches and creating opportunities for secondary and post-secondary dialogue.

Developing Portable Credentials

It is typically beyond the scope of a local school district to develop a portable record of the specialized skills and general work-readiness abilities that students gain through program participation and that will be recognized by all post-secondary institutions and potential employers. While several of the case study sites grant certificates of achievement to program graduates, these are typically issued in conjunction with a regular high school diploma and may or may not be considered by other education institutions and employers. Rather than leaving the development of skill standards to local operators, state-led consortia (such as Oregon's effort to develop Certificates of

Initial and Advanced Mastery[1] and Wisconsin's issuance of a youth apprenticeship certificate to program graduates) and federal efforts (such as those directed at developing uniform skill standards under Goals 2000) are better equipped to develop standardized portable credentials.

Even though states continue to control graduation requirements, individual sites appear to be emerging as leaders in developing alternate methods of assessing student performance. For example, Dauphin County received approval from the state to replace Carnegie units with performance-based outcomes according to state-developed competencies (which extends Dauphin County's applied approach to all academic subjects).[2] However, it remains to be seen how post-secondary institutions and employers will react to Harrisburg's new student assessment method.

Providing Staff Training and Curriculum Development

Several case study sites credited staff training and curriculum development assistance, primarily that received from state education agencies, with substantially advancing the development of their initiatives. Most striking, the State of Wisconsin launched youth apprenticeship by creating advisory bodies representing educational, employer, and community interests in school-to-work and writing school- and work-based curricula to guide the development of printing youth apprenticeship programs. More recently, Wisconsin expanded youth apprenticeship from printing into the fields of health, finance, auto technology/auto collision, and insurance by commissioning the writing of new curricula in each area; the state's efforts to develop skill-certified cooperative education options for all students is also taking hold in the two Wisconsin case study sites. In Pickens County, under state school-to-work legislation, teacher training in applied teaching techniques is provided and has helped all teachers to better understand tech prep.

The federal government, through the National School-to-Work Office and the Learning and Information Center, is also credited with providing technical assistance in a wide range of areas. Specifically, the establishment of the technical assistance resource bank of nearly 150 school-to-work experts and lines of credit that states and local partnerships may use to access technical assistance, cross-state implementation meetings convened by the National Office, and many presentations and publications on school-to-work, have made information widely available to states and localities nationwide. In addition, the National Office, by serving as an external leader and lending validity to local efforts, can help local initiatives to achieve change.

Interestingly, as leaders in school-to-work, staff from the 16 case study sites are often called upon to provide technical assistance to others. Program leaders in Oakland, Cambridge, Baltimore,

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[1] See National Center for Education and the Economy's Commission on the Skills of the American Workforce, 1990. The commission report proposes that all students be examined by tenth grade on their mastery of reading, math, and other core knowledge, with high school graduation and entry into specialized high school courses conditioned on passing the examination. The Commission's goals are to ensure that all students possess the basic skills required in the workplace, to establish a credential that will be a reliable indicator to employers of students' mastery of these skills, and to give students an incentive to learn the skills, since the opportunity to receive work-related training will depend on passing the examination.

[2] Carnegie units are standards of measurement that represent one credit each for the completion of a one-year course in secondary school.

and Tulsa, in particular, are considered national experts and regularly address local, state, and national groups; program staff at other sites are relied upon as regional and local authorities on school-to-work.

Coordinating Employer Education and Outreach Campaigns

As more individual school-to-work initiatives are launched and expand toward becoming an interrelated system of school choices for students within broad geographic areas, state education agencies might consider supporting increased coordination among potential employer partners and collaboration between school districts and other entities. State and regional organizations can facilitate cooperation among multiple school districts and local partnerships that share a common economic base, and may be able to reach multiple employers more efficiently than single school districts. For example, Pennsylvania's public awareness campaign has piqued local employers' interest in participation in Dauphin County; site staff credit the state's aggressive education and information dissemination campaign for bringing more local employers to the school and increasing employers' understanding of how they can contribute to school-to-work.

While states associated with the case study sites have generally not yet become involved with coordinating employer participation in school-to-work, individual sites have demonstrated the need for increased coordination among several local initiatives and suggest where such coordination might be more efficiently handled by state or regional entities. For example, Baltimore staff are taking part in an effort to form an umbrella organization intended in part to coordinate employer participation and the development of internship positions for students from multiple career academies. The effort was undertaken because local programs fear they might be approaching (and possibly overloading) the same employers as more academies are launched throughout the greater Baltimore area. Similarly, Tulsa's Chamber of Commerce continues to play an intensive advisory and coordinating role as new school-to-work initiatives are launched involving multiple school districts and employers throughout the area.

Network Building

Oakland provides a good example of how network building can promote and strengthen school-to-work. As one of California's original Partnership Academies, Oakland is part of state-led efforts to spread and improve high school career academies through annual all-site conferences and special projects (for example, to improve integrated curricula in specific subject areas, including health). The program also receives partial funding from the state. Similarly, as one of Oregon's original demonstration schools, Roosevelt High School (Portland) benefited early on from state officials' guidance and from interaction with other leading school-to-work programs within the state (although the state has reduced its funding to the demonstration sites, and Portland noted that the group meets less frequently). Networks of sites engaged in similar activities have also been promoted in Indiana (tech prep) and Arkansas (youth apprenticeship); case study sites that participate in these networks noted the value of shared information among initiatives focused on attaining similar goals.

Linking School-to-Work with Other Education Reform Efforts

By interpreting federal and state education reform laws, and setting policy and regulations in accordance with such laws, the federal government and state agencies play an important role in linking complementary reform efforts such as the STWOA, Goals 2000, and the Improving America's Schools Act (which reauthorized Title I of the Elementary and Secondary Education Act of 1965), and helping localities use federal resources more creatively and flexibly. At best, such guidance can help local programs access resources and information to create strong initiatives that draw from several approaches to education reform; at worst, multiple reform agendas may appear contradictory at the local level. (See *Possible Hindrances to Program Development*, below.)

Contributing Financial Assistance

The passage of the STWOA brought an infusion of financial assistance to states and local partnerships to help promote the development of school-to-work systems to serve all students. Eight (of twelve) states containing ten of the case study sites received state implementation grants; in these states, five programs have already benefited directly from these funds. Also, five sites are located in areas that received local partnership grants from the federal government. In addition, several sites have received other federal grants under Goals 2000 (Dauphin County), the U.S. Department of Labor's youth apprenticeship initiative (Oakland), and Carl Perkins demonstration funding (Cambridge). Such federal funding is being used by the case study sites and other local partners to explore new school-to-work approaches and replicate those that appear promising (Baltimore, Tulsa); to continue to provide technical assistance to program teachers (Portland, Dauphin County); to expand successful school-to-work components such as career exploration to lower grade levels (Fort Collins), and work experience to more students (Central Point, Fox Cities); and to develop specialized program features, such as a youth apprenticeship option (Oakland) and an improved integrated curriculum (Dauphin County). Often, outside funding is used to pay the salary of a point person in charge of expanding specific program components and further program development.

Half of the case study sites received financial support from state school-to-work initiatives, and most of these sites continued to receive additional state funds through 1996. In most instances, state funding is directed toward the promotion of specific program approaches as mandated by state legislation. For example, Little Rock receives annual support as part of Arkansas youth apprenticeship legislation (Act 10 of 1991), and the program must meet several state requirements as a condition of continued funding, including that students work no more than 20 hours per week, articulation with post–high school education or training programs in each occupational area, and follow-up of students for two years after they graduate from the program.

Were such additional funds to be withdrawn, sites that have become institutionalized appear likely to continue in operation, although innovation and continued program development could slow down. It is difficult to predict the long-term prospects of programs that continue to rely on special funding to cover the bulk of ongoing operating expenses, or that serve relatively few students and thus have remained marginalized.

Possible Hindrances to Program Development

Several of the case study sites identified requirements and policies that can hinder program development and operation, and noted areas in which additional state-level support and assistance are needed. For example, at times, systemic reform initiatives tend to compete with — or work at cross-purposes with — local school-to-work initiatives. Broad education reform goals may include higher achievement in established academic courses, while school-to-work places greater emphasis on learning through workplace experiences and applied technology courses. Some teachers may not see how school-to-work innovations can help students academically, particularly in traditional subject areas, and a state's emphasis on achievement in traditional subject areas may solidify traditional teaching methods, thereby undermining teachers' interest in school-to-work approaches. In addition, existing state education requirements — including specific courses required for graduation and required minimum hours of study — may limit the amount of time during the school day that is available for work-based learning and other innovations. Similarly, teacher certification regulations (set by state education agencies) may limit opportunities for integrated instruction. In some cases, programs have sought special waivers of state requirements in order to implement key program features. In some instances, states' child labor laws may limit internship opportunities, if, for example, students under the age of 18 are prohibited from working in more than one paid position at a time. (Students may have jobs that they are unwilling to give up in order to participate in paid work experience, along with internships that are part of the school-to-work initiative.)

Second, several case study sites have experienced some frustration at the pace of state-led reform efforts specifically focused on school-to-work. These sites tend to be front runners in their states and often lead the development of new program components and approaches to reform. Local innovation may precede state policy and can cause ambivalence with regard to state requirements. This is often the case in places where statewide standards are being developed. For example, in Oregon, the Central Point site has adopted a Certificate of Initial Mastery, while the Portland initiative is waiting for further guidance from the state on the content of this certification; both sites express uncertainty about the direction the state will take regarding Certificates of Advanced Mastery. Lack of clear strategy from states, particularly around the development of standards, may make local programs hesitant to move forward with curricular innovations until they know what criteria their programs must meet.

Brief Summary of Program Costs

In all 16 case study sites, program costs are substantially covered by the local school districts that house these initiatives. Typically, district funds are used to pay teachers and to cover some program development costs. However, as noted above, many of the case study sites also continue to receive extra funding from outside their home districts — from federal or state demonstration grants, from local employer partners, or from foundation grants. In most cases, the case study sites noted that extra funding is used to staff program coordinating and employer relation functions. Most programs studied have specially dedicated, nonteaching personnel whose primary responsi-

bility is to develop and maintain employer relationships, to create work-based learning positions, to make efforts to connect school with work, and to monitor students' progress at worksites.

In addition, as the programs continue to evolve and add or fine-tune specific program components, external funding is often directed toward special projects and program enhancements. Even well-established programs often need additional funding to create new program components, continue to train teachers, and help pay for work-based learning coordinators. States and the federal government should recognize the ongoing funding needs of programs as they continue to develop and innovate.

Conclusion

Most of the case study sites benefited substantially from assistance from federal and state agencies. This assistance was used to build connections between school-to-work and post-secondary institutions, establish portable credentials, provide staff training and curriculum development assistance, coordinate employer outreach campaigns, promote practitioner networks, link school-to-work with other education reforms, and for financial assistance in support of specific program components and staff dedicated to developing and maintaining employer relations and work-based learning. Future state and federal policies should be mindful of such activities and the fact that additional funding is likely to continue to be needed as programs fine-tune and add program components. Finally, state and federal agencies bear the added responsibility of linking school-to-work efforts and funding with related employment and training and economic development initiatives if a systemic approach is to take hold.

Appendix

Description of the Programs in This Study[1]

Career Academies

Academy of Finance: Lake Clifton-Eastern High School Baltimore, Maryland

Program Description

The Academy of Finance is housed within Lake Clifton-Eastern High School, a large comprehensive neighborhood high school serving over 2,000 students in grades 9 through 12.[2] The Academy, which is part of the National Academy Foundation network, is one of several citywide programs in the Baltimore City Public School System; all Baltimore eighth graders may apply to enter the Academy in the ninth grade. Most students are African-American. The Academy is primarily supported through district funds and contributions from employer partners.

School elements. In order to maintain its small school-within-a-school environment, enrollment has remained stable at approximately 250 students in grades 9 through 12. Students take academic and finance-related classes together and maintain close contact throughout their Academy experience with the program director and the program's three occupational teachers. Finance-related courses are closely linked and include exploring financial careers, introduction to personal computers, computer science, economics, finance, banking and credit, college-level accounting, security operations, and international finance. Students also take personal development seminars on interviewing and résumé writing, presentation skills, time management, career planning, and other topics. The Academy provides support services, including tutoring and academic advising.

Work elements. Academy students are exposed to the workplace throughout their high school career via job shadowing (students shadow employees for one day four times during the school year in grades 10 and 11), mentors (assigned to all grade 10 and 11 students), field trips and guest speakers throughout their Academy experience, and paid internships during the summer after the eleventh grade. All employers are encouraged to assign both a worksite mentor and a supervisor to each intern, and students and their workplace supervisors are required to complete a Summer Internship Training Plan/Job Description, which explicitly lists job tasks, outcomes (performance and knowledge) expected to be gained by completing tasks, and supplemental learning activities to enhance the students' summer work experience. In addition, the Academy is governed by a very committed, involved employer Advisory Board, which provides funding, access to job shadowing and internship opportunities for teachers and students, and program leadership and oversight.

Post-secondary elements. The Academy strongly promotes college attendance, and most program graduates enroll in post-secondary programs. Students are given the option of taking a three-credit

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[1]Longer descriptions of individual programs are found in the appendix to *Home-Grown Lessons* (Pauly, Kopp, and Haimson, 1994), MDRC's original school-to-work report.

[2]A "comprehensive" high school offers mostly academic and some vocational classes, as opposed to a vocational high school, to which students from area high schools travel to take vocational classes.

introductory finance course at nearby Morgan State University. The Academy also makes special efforts to help students access the local community college; all Academy students complete an application and are automatically accepted into Baltimore City Community College (which is used as a fallback position by many students who cannot afford to attend or are not accepted by other post-secondary institutions).

Changes/Issues Since 1992–93

- Rather than increasing Academy of Finance enrollment, Academy leadership has spearheaded efforts to launch a second National Academy Foundation program in the Baltimore City Public Schools (an Academy of Travel and Tourism), and the program's original administrative structure has evolved to accommodate the second Academy program and activities designed to create an umbrella organization for all Baltimore-area academy programs.

- Starting in the 1996–97 school year, in an effort to more tightly control the quality of academic courses that Academy students take, the program created a more cohesive teaching team and a stronger school-within-a-school by teaming with another Lake Clifton program (Law-Related Education) and moving all academic and occupational staff, and classrooms, to a separate wing of the high school. An additional occupational teacher was also hired (three occupational teachers are now dedicated solely to the Academy), and all academic and occupational teachers will now teach Academy classes only.

- A significant increase in the number of students eligible for internships is expected in the summer of 1997, due to the start-up of the Academy of Travel and Tourism and a large eleventh grade class within the Academy of Finance during the 1996–97 school year. An internship coordinator has been hired to manage mentoring and internship opportunities, and to coordinate employer contacts with other Academies located within Baltimore County to minimize overlap and avoid multiple requests to the same company.

King-Drew High School of Medicine and Science (formerly King-Drew Medical Magnet High School) Los Angeles, California

Program Description

King-Drew High School of Medicine and Science, located in south central Los Angeles, is a citywide magnet program serving students in the Los Angeles School District. The school's population of 220 is predominantly African-American, and approximately one-fourth of the school's students live in its neighborhood. The school is supported through district general and magnet funds.

School elements. King-Drew High School currently includes grades 10 through 12. The school's curriculum, focused on the academic courses needed to enter college, emphasizes science, math, and other courses related to the study of medicine. Medical examples, vocabulary, and related assignments are used in many courses. Students use their work-based experiences in school assignments including

class presentations, report writing, and junior and senior research projects. Students also take workplace-linked courses in career exploration, health, hospital careers, and health occupations. King-Drew's small size, with only 10 teachers, enables students and staff to develop strong relationships; students typically have the same teacher for two or more courses during their three years at the school.

Work elements. Work-based learning is a central part of the school's program and is highly integrated into the curriculum. All students participate in work-based learning and rotate to different experiences in hospitals, clinics, research facilities, and/or medical offices: grade 10 students spend three hours per week at their worksite and rotate through four placements; grade 11 students spend five hours per week at their worksite and rotate through four placements; and seniors have more intensive experiences at two placements during the year (five hours each week). A training plan is developed for each rotation, including a list of experiences that students are expected to carry out during the rotation and competencies they are expected to master. Students both observe and participate in the work of the department/clinic/office with which they are placed, but typically more time is spent on observation. Each semester students take a course linked to their workplace rotation.

Post-secondary elements. The high school has a strong college preparatory emphasis, and almost all of the school's graduates attend college or receive post-secondary training. King-Drew has a strong relationship with and is located on the campus of Charles Drew University, which gives students and faculty access to its library and learning laboratories. The university does not offer a four-year degree at this time, but once such a degree program is established, the high school hopes to work with the university on mechanisms for directly moving its students into a bachelor of science degree program.

Changes/Issues Since 1992–93

- King-Drew has plans under way for building a new facility and expanding the school's population from just over 200 to 1,700 students, and including grades 9–12. The new building has been delayed a year, and is now expected to be completed in 1998. Planning for the expansion has started. Faculty are looking into the possibility of creating six schools-within-a-school, each with 10 teachers, one counselor, and other staff, to essentially replicate the current school structure and maintain the small-school atmosphere. Another possibility is to create schools-within-a-school that have different health and science themes. Faculty are also starting to investigate alternatives to work-based learning because they do not feel they can place 1,700 students every year. For students in grade 9 (and possibly grade 10), they will try to "bring the hospital to the school" by having health professionals make presentations to classes and by including clinical lab work that involves activities done in hospitals.

- The delay in King-Drew's expansion, which will enable the program to include grade 9 students for the first time, has had an impact on recruiting efforts. Over the past three to four years, most of the middle and high schools in the district have been reconfigured so that grade 9 is typically included as part of high school. King-Drew is the only magnet school in the district that recruits students in grade 8 and then asks them to wait a year in another school (recruiting at the high school level is not positively received since King-Drew attracts strong students away from other high schools). Thanks to a strong reputation and positive word-of-mouth, the school has not had difficulty filling its slots, but the waiting list is much smaller than it used to

be. Recruitment efforts will have to be geared up in preparation for moving into a larger facility.

- King-Drew undertook an assessment of its work-based learning placements in an effort to evaluate the learning opportunities provided to students. The study found that 30 percent of the placements offered limited experiences around a work product/project rather than the more academic-oriented learning experiences for which the school is looking. As a result, some placements were dropped and new ones — particularly in medical research — were developed.

Health and Bioscience Academy: Oakland Technical High School Oakland, California

Program Description

The Health and Bioscience Academy is housed within Oakland Technical High School, one of the city's largest comprehensive high schools, which serves approximately 1,600 inner-city, disadvantaged youths in grades 9–12. As one of 13 Academy programs located throughout the district, the Academy recruits students district-wide and enrolls approximately 270 students. The Academy receives support from the district, state, city, foundations, and the federal government.

School elements. The Academy is a school-within-a-school program for students in grades 10–12 (with a small number of students who are repeating the ninth grade at Oakland Tech also admitted). The Academy's goal is to reduce the dropout rate among at-risk students, and to prepare them for post-secondary education and skilled health careers. Academy students take three or four classes together each year, including English, science (biology, biomedical lab, advanced biology, physiology, chemistry), social studies, computer applications, health occupations, and advanced electives. Courses focus on science- and health-related themes, and teachers use a variety of instructional approaches, including team projects, reflective learning activities, competency assessments, and other innovations. Field trips, guest speakers, job-shadowing opportunities, community service opportunities, employer mentors, and tutoring are provided to inform students about a wide range of health and bioscience careers and to help them succeed in school.

Work elements. Academy students are exposed to the workplace in a variety of ways over their 3–4-year program experience. Tenth grade students are matched with an industry mentor; students may also engage in volunteer work to gain field experience during the spring of their sophomore year. During the summer after the eleventh grade, students are placed in an internship that is closely monitored by Academy staff, who visit interns and their supervisors to assess the implementation of training plans, check student attendance and work behavior, and respond to any problems that arise. Students are paid by the employer or by the City of Oakland through youth employment programs. During the twelfth grade, students may either continue their summer employment or enroll in a health cooperative education class; each twelfth grade student also prepares a major health-related project that may incorporate comments from an adult mentor working in the health field. The Academy has an active advisory group that

includes employer representatives. The Academy has also been instrumental in starting a Health Education Center and school-based clinic at Oakland Tech; Academy students have worked in the clinic and have been trained as peer educators to volunteer in the education center providing peer counseling on AIDS and drug education.

Post-secondary elements. The Academy has built a number of meaningful relationships with area post-secondary institutions that expose students to post-secondary options and provide opportunities for Academy students to interact with post-secondary students and professors. For example: Academy students may take community college courses when specific courses they want are not offered at Oakland Tech, or to make up courses during the summer; select community college classes have been offered on the high school campus; Academy students participate in a range of health-related events sponsored by local colleges and may shadow college students enrolled in courses of study that interest them; college students have designed hands-on exercises for Academy students to fulfill their own degree requirements; and Academy students have worked with graduate students on an urban renewal project. The Academy also has several articulation agreements already in place that allow students to earn extra points toward admission to community college programs and to earn college credits in specific degree areas.

Changes/Issues Since 1992–93

- In terms of recruitment, the Academy has had to make concerted efforts to enroll male students and low-achieving students in the program. This is because the jobs and careers traditionally offered have been more appealing to female students and because, as the stature of the program has grown over time, more high-achieving students have been applying, particularly from schools other than Oakland Tech. To address this imbalance, the Academy is introducing career paths that may appeal more strongly to male applicants, such as emergency medical technician and ambulance services, as well as reaching out to lower-achieving students during district-wide recruitment events and accepting students from within Oakland Tech who are repeating the ninth grade.

- The Academy's rich program has evolved incrementally over time, with program leaders focusing on individual aspects of the Academy one at a time. For example, during the 1995–96 school year, Academy staff and advisory committee members worked almost exclusively to get the Oakland Tech Health Education Center/Health Clinic off the ground. The following year, they refocused on strengthening work-based learning opportunities. The Academy director notes that, unless programs have a lot of personnel or funding, projects must evolve in this way.

- The Health and Bioscience Academy serves as a model for the district's 13 Academy programs, all of which receive support from a central magnet office. The district office coordinates district-wide recruitment (creating marketing information, organizing recruitment events, and the like), sorts through multiple Academy applications by individual students, and is becoming more involved in developing student internship opportunities.

Socorro Health Professions Academy, Socorro High School
El Paso, Texas

Program Description

Socorro, Texas, is a predominantly urban area on the U.S.-Mexico border, located about 10 miles east of El Paso and the border city of Juarez, Mexico. The district serves a rapidly growing, predominantly Mexican-American population, and many families are economically and educationally disadvantaged. The Academy serves approximately 250 students, and recruits students district-wide. Support is provided by the district, in part through vocational education funding.

School elements. Socorro's Health Professions Academy was designed to address the underrepresentation of minorities in the health care field owing to students' lack of information about health careers, appropriate role models, and study skills. To meet these needs, the four-year in-school magnet program has small blocked classes, an integrated curriculum, clinical experiences and work internships, and student leadership activities. Students take most of their classes together in grades 9 through 12, including a four-year health occupations course sequence, English, social studies, math, and science. A team of 13 teachers (including 4 health occupations teachers) and a guidance counselor assigned to work with all Academy students throughout their four years in the program, meet weekly to discuss the integration of academic and occupational instruction, address the needs of individual students, and plan Academy events. Most Academy students participate actively in the school's chapter of the Health Occupations Students of America (HOSA) program and its local, state, and national competitions in public speaking, CPR skills, and response to mock trauma cases. The Academy also offers a summer program to those students desiring Certified Nursing Assistant credentials.

Work elements. In grade 11, students' schedules are reorganized to allow them to participate in a full-year job shadowing/rotation experience at the local public hospital two mornings a week. The eleventh grade experience allows students to observe a wide range of health occupations and prepares them for employment in the twelfth grade cooperative education class. In the twelfth grade, most students enroll in the co-op class and work part-time in area hospitals or with other health care providers, or — if enrollment in fourth-year science and math and participation in extra-curricular activities do not allow enough time for the co-op — students may take an Independent Research Class focused on a topic related to health careers. Employers also participate in several annual Academy events on campus.

Post-secondary elements. Articulated credit at the El Paso Community College is offered for completion of the Academy curriculum. A certificate has been developed that students can show to community college counselors to obtain articulation credits.

Changes/Issues Since 1992–93

- During the summer of 1995, a wing of Socorro High School underwent substantial renovation in order to house Academy classrooms together in one location. Eleven of the 13 teachers' classrooms are now located on this wing, and most students have their lockers on the same hallway. This allows teachers and students in different grade levels to mix freely throughout the school day. In addition, having a recognizable, geographic location, combined with the Academy's growing reputation, has increased the program's visibility on campus.

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- The Academy's lead teacher has had to continually reassess and redesign work-based learning opportunities for twelfth grade co-op students and seek out innovative ways to engage employer partners over the past three years. During that time the school converted to a year-round schedule (altering the students' work schedule and bringing co-op students into possible conflict with summer volunteers); management and organizational changes have taken place among area health care providers; and new health occupational programs have led to increased competition for student internship slots. Since the Academy firmly believes that students receive the best training at a teaching hospital through internships and rotations, the program has been unwilling to place students in positions where they might not learn as much on the job. Student work schedules have been altered to take advantage of all internship opportunities and, in some cases, students must start as unpaid volunteers in order to get their foot in the door and be first in line when a part-time paid position opens up.

- In 1995, the Academy became the district's only health occupations program (with the closure of the health occupations program at another high school) and began to recruit students district-wide from all area middle schools. The Academy has chosen to limit enrollment to approximately 250 students in four grades, however, to maintain its small-school feel and the ability to block-schedule students, and to limit the size of its teaching team and required class space. Socorro High School, selected as a National Blue Ribbon School by the U.S. Department of Education, is also planning to replicate the Academy in five new occupational areas, and the district has opened a third high school, which is being developed as an international magnet school. The Academy has also served as a model for similar programs being launched in surrounding school districts.

Occupational-Academic Cluster Programs

Crater High School
Central Point, Oregon

Program Description

The Central Point School District serves a largely rural, blue-collar, low socioeconomic status community just outside Medford, Oregon. Crater High School serves just under 1,400 students in grades 9 through 12, and roughly 22 percent of its student body is enrolled in one of three schools-within-a-school (SWAS), which are structured around the career themes of business, social service, and ecology. After receiving initial start-up funding from the state to develop curriculum, support extra planning time and professional development for teachers, and undertake other tasks, the SWASs and the school's School-to-Work Coordinator are now entirely funded by the district.

School elements. Reform at Crater High School has been largely teacher-driven. Each SWAS was created by a team of teachers who were interested in developing ways to improve students' learning, reduce dropout rates, and strengthen the connection between school and work. As such, each school-within-a-school differs somewhat as it reflects the talents and interests of its teaching team. The School of Social Service serves students in grades 10–12, while the Schools of Business and Rogue Ecology include students in grades 11 and 12. (The School of Rogue Ecology formerly served tenth grade students

as well, but as class size grew, it became necessary to limit the program to grades 11 and 12.) The School of Social Service's integrated curriculum emphasizes the life cycle and explores human development, but also includes skills and concepts from language arts, social studies, and health. The School of Rogue Ecology offers integrated curriculum in math, science, and social studies, with the goal of promoting active participation in understanding of the Rogue Basin ecosystem. The School of Business's curriculum integrates business courses with English, social studies, and economics.

The SWASs share the following common features: Students have a daily four-period block of classes with the SWAS's team of teachers, with the exception of Rogue Ecology, which has a three-period block, and are mixed across grade levels; students take an additional three to four periods outside the SWAS; the four-period blocks cover academic and occupation-related topics, with integrated instruction across subjects; team teaching and individualized instruction are used extensively; basic skills, higher-level thinking skills, and applied learning are emphasized; and technology is used extensively for learning. Teams composed of two to three teachers in each school plan courses together, and teamed teachers have common planning periods and lunch together so they can coordinate instruction.

Work elements. Drawing on a data base of over 400 employers willing to host interns, students are able to participate in internships one day a week during the SWAS's three-to-four-period block. In most instances, work-based learning is focused on developing an awareness of job opportunities and work skills needed, rather than on skill training in a specific area. Students' experiences at the worksite are guided by the initial student/supervisor interview and training plans, which emphasize skills particular to specific occupations. Students also keep journals of their internship experiences (required in all three SWASs), and teachers integrate students' workplace experiences into classroom activities. Students are not usually paid, but they earn high school credits for their placement. In some cases, students in the School of Rogue Ecology work on group projects for various government agencies concerned with the environment, rather than participate in individual internships.

Post-secondary elements. Crater High School has articulation agreements with nearby community colleges, and in particular with Rogue Community College (RCC) in Industrial Arts.

Changes/Issues Since 1992–93

- A personalized learning environment and "small school feeling" has been strengthened in each school-within-a-school by designating specific classroom space at Crater High School (School of Business and School of Social Services), or by building a separate facility (School of Rogue Ecology, which has an off-campus site with field lab locations).

- Crater High School has received funding from the State of Oregon to develop work experience opportunities for all students within three years, either within the SWAS as currently implemented or through new approaches to allow students not enrolled in SWAS to access work-based learning opportunities. For example, students who are not enrolled in SWAS currently may participate in internship opportunities through independent study credits (special options credits), which involve an internship designed by students and the school-to-work coordinator and approved by the assistant principal. The high school is also working to coordinate and enhance the complementary services of its Career Center and School-to-Work Office, by, for example, developing specialized job search packets.

- Crater has successfully fostered acceptance for its SWASs among the majority of staff by communicating information about the programs at open forums during faculty meetings, providing all staff with information about the reform initiative, and helping traditional teachers realize that SWAS staff do not receive "special treatment." (All teachers have two preparation periods daily, but SWAS teachers have one period in common during which they can meet as a group.) It has also become clear that Crater will maintain traditional classes and scheduling as long as some students and teachers wish to participate in a "regular school program."

- After accepting a Federal/State School-to-Work grant, Central Point has appointed a district school-to-work manager to collaborate with other regional efforts and to direct the district's School-to-Work/Career Development Program K-12. The school-to-work manager also developed a district-wide Character Traits Program K-12, which directly relates to classroom behavior, work experience readiness, and performance. An evaluation form was developed eventually to be used in both the classroom and at work sites. This evaluation combines the designated character traits and employability skills.

- A Youth Transition Program (YTP) has been in operation at Crater High School since the beginning of the 1993–94 school year. YTP is a collaboration between the Oregon Vocational Rehabilitation Department and the University of Oregon, designed to develop and enhance the academic and vocational strengths of students who have mild learning and physical disabilities. This program operates under the School-to-Work umbrella and uses a transition specialist to assist students with work experience and transition needs.

Dauphin County Technical School
Harrisburg, Pennsylvania

Program Description

The Dauphin County Technical School (DCTech), a comprehensive vocational high school created in 1970, serves six school districts in the suburban area surrounding the city of Harrisburg. The school, which served 840 students in 1995–96, is primarily supported by the districts it serves. In addition, DCTech received two federal Goals 2000 grants to share its curricula and undertake joint curriculum development with three other vocational schools in the immediate area.

School elements. DCTech's academic courses and 20 vocational shops are organized into four occupational clusters that operate as schools-within-a-school: technical, communications and transportation, construction, and service occupations. The academic teachers within a cluster integrate vocational material into the academic curriculum to make the instruction relevant to and supportive of technical instruction students receive in their shops. The school uses a "week-about" system, in which students devote all of their time to academic classes for one week and to vocational classes the following week. Students have the same group of teachers over three years. A ninth grade exploratory program operates as a separate school-within-a-school and consists of academic courses, career exploration, self-esteem building, and experience in each of the school's shops.

Work elements. Many students work in co-op education placements during the twelfth grade, replacing their vocational course work. Students work full-time every other week, taking academic

courses in school during alternate weeks. Most students are placed in existing entry-level positions, many of which become permanent upon graduation. Co-op students meet weekly with their shop teachers to discuss what they are doing on the job and to write regular reports. (Some are required to do additional reading and writing assignments.) In recent years, new internship and job shadowing opportunities have been developed to expose younger students to the workplace. Internships, available to students in grades 11 and 12, are shorter experiences than co-ops, and students are not paid. The internships are most commonly developed in service occupations and the public domain, where budgets are limited for paid positions. Internship opportunities are individually developed and structured; participating students are required to produce a written report on their experience. Job shadowing opportunities are often arranged as group experiences for younger students to see the application of skills and range of careers in their chosen field.

Post-secondary elements. DCTech has articulation agreements with the Harrisburg Area Community College in math, English, and all of the school's technical subjects. Students can earn up to 18 college credits while in high school. Student use of these arrangements has increased in recent years.

Changes/Issues Since 1992–93

- DCTech is the first school in Pennsylvania to have approval from the state to eliminate Carnegie units and replace them with state-developed performance-based outcome measures. Starting with the ninth grade class entering in the 1996–97 school year, DCTech students have to meet 60 academic knowledge and skill requirements in the areas of communications, home economics, mathematics, arts and humanities, citizenship, wellness and fitness, science and technology, environment and ecology, and career education and work. In addition, they have to attain the competencies required in their specific vocational programs and complete a senior project in order to graduate. School staff have started to review their curricula to see what needs to be changed to make sure that instructional areas match the competencies and to change how they go about assessing student progress. The math curriculum has already been revamped into a four-year continuum of competency-based instruction, and is in its second year of implementation.

- The use of competency-based curricula in classes where students work at their own pace and are at varying levels will require teachers to use multiple instructional approaches. To help support the use of multiple approaches, the school changed its schedule so that academic classes are slated for double periods lasting 75 minutes each (rather than the traditional 45 minutes). In addition, the school has begun to undertake significant professional development for teachers, covering competency-based instruction and assessment and the use of multiple instructional techniques.

- In recent years, greater emphasis has been placed on co-op and other workplace-based experiences by the vocational instructors. Consequently, the co-op program grew from 50 percent of seniors in 1992–93 to roughly 75 percent of seniors in 1995–96. As noted above, new internship and job shadowing opportunities are also now available. The increased emphasis seems to be due in large part to increased teacher-employer interaction: Business representatives have come to the school to talk with teachers about the skills they are seeking, and teachers visit employers as part of curriculum-development efforts.

- DCTech is now accepting almost all its students through its grade 9 program, which receives more applications than it can accommodate. Overall, the incoming ninth graders have a higher academic ability than the students who used to enter in grade 10.

Roosevelt High School: Roosevelt Renaissance 2000
Portland, Oregon

Program Description

Roosevelt High School, part of the Portland Public Schools district, serves North Portland, a low-income, working-class community that includes the state's largest public housing projects. The Roosevelt Renaissance 2000 (RR2000) initiative is a school-wide reform effort. The program began by serving ninth graders in 1992–93, and an additional class of students has been added each year. In 1995–96, all 1,286 students in the school were included in the initiative. While planning for the initiative preceded passage of Oregon's school reform legislation, the RR2000 initiative closely resembles the state's reform effort, and Roosevelt High School has served as one of six demonstration schools for the state. Key coordination staff for the initiative are supported by district funds. A federal Urban/Rural School-to-Work (STW) Opportunities Grant provides resources for staff training, curriculum development, student transportation to worksites, expansion of career exploration resources, and additional staffing to develop work-based learning positions.

School elements. The RR2000 initiative has created six career pathways (essentially clusters of courses, teachers, and students) for students in grades 10 through 12 in the following areas: Arts and Communication, Health Services, Human Services, Business and Management, Manufacturing and Engineering Technology, and Natural Resource Systems. After a ninth grade exploratory course — which includes career exploration, life skills instruction, self-esteem building, problem-solving, decision-making, group work skills, and introduction to the six career pathways — students select a pathway. In grade 10, students take one introductory course in their pathway. In grades 11 and 12, they take one or two pathway-related courses each year. Ongoing efforts are being made to emphasize contextual learning and incorporate work-related examples throughout the whole school's curricula. The greatest changes have been made in English and social studies courses. Some English classes are pathway-specific in that they incorporate work and career examples relevant to a specific pathway and serve all the students (at the same grade level) in that pathway. A number of pathway-specific social studies classes have also been developed.

Work elements. Nearly all students in grades 9 and 10 participate in job shadowing experiences. The grade 9 experience is organized in connection with the freshman career exploration course. In grade 10, students' job shadowing experience is with an employer that works in the area of the student's chosen career pathway. All job shadowing experiences are structured and involve students completing questionnaires, reporting back to their class, and sending the employer a thank you letter. A range of work internship opportunities are in place for students in grades 11 and 12, in connection with specific pathway courses. Most internship opportunities are a half-day each week for six to eight weeks, although in one pathway students benefit from a seven-month health internship opportunity. A training agreement is developed for the internship positions that identifies tasks to be performed, learning objectives and expectations of the student, the employer, and the school. Internship experiences are developed for one class at a time so that the business liaison and teachers can determine how concepts from a range of work placements can be integrated into the curriculum.

Post-secondary elements: RR2000 is working with several local community colleges to develop articulation agreements for each career pathway area. A community college has been paired with each of the six areas, and the colleges have committed to developing a course that logically follows from the high school–level curriculum in each of the pathway areas. RR2000 is also providing counseling to inform students about post-secondary options and help connect them to college.

Changes/Issues Since 1992–93

- Since 1992–93, the RR2000 program has grown each year to add a grade level of students, and now operates school-wide. This growth has required ongoing curriculum development; teacher teams have created pathway-specific courses in each of six areas for each grade level. In addition, new instructional materials have been added to English, social studies, and other courses to integrate academic instruction with occupation-related examples and themes.

- Work-based learning opportunities have increased significantly over the past three years. RR2000 now provides 650–700 job shadowing experiences a year (compared with 251 in 1992–93). Work internship experiences have grown from a handful of opportunities to nearly 300 a year over the same time period.

- Scheduling issues continue to be a challenge as RR2000 seeks to offer career pathway courses in each of six occupational areas for each grade level and eventually place virtually all eleventh- and twelfth-grade students in work-experience positions. The new courses and work-based learning opportunities compete with more traditional course offerings for class time and teacher availability. The faculty has not reached a consensus about how much thematic instruction, curriculum renovation, and school-within-a-school structure they should strive to achieve. Since the school has had three principals in the last five years, RR2000 has not benefited from administrative leadership to provide direction in this area.

Restructured Vocational Education Programs

Rindge School of Technical Arts
Cambridge, Massachusetts

Program Description

The Rindge School of Technical Arts (RSTA) is the second-oldest vocational school in the country. It is now one of six "houses" within the Cambridge Rindge and Latin School, the only high school serving the diverse community of Cambridge. RSTA's restructuring efforts seek to link vocational and academic learning, train students in all aspects of their chosen industry, and link vocational education with community economic development efforts. RSTA served 200 students in the 1995–96 school year (out of an entire high school population of 1,900). Curriculum development, internship programs, and other innovations are supported with reallocated Carl Perkins funds, foundation grants, a federal grant for integrating academic and vocational instruction, and some state school-to-work money. Most of RSTA's ongoing costs are supported by the school's regular budget and Carl Perkins vocational funds.

School elements. Prior to the restructuring effort, students took their academic classes in the larger comprehensive school and RSTA provided their vocational courses. Most academic instruction is now provided within RSTA for grades 9 and 10 and integrated with occupational themes. In grade 9, students participate in the CityWorks program, which includes three integrated courses. The core course is CityWorks, a project-based, hands-on course that uses the City of Cambridge as the classroom and enables students to explore the occupations taught at RSTA through community development projects. Students also take CitySystems, a combination of math and science with vocational themes, and CityLife, integrated English and social studies with vocational themes. The Pathways program for tenth grade students includes a Pathways course, which provides exposure to careers in four occupational clusters (health and human services, business and entrepreneurship, industrial technology and engineering, and arts and communication) and emphasizes generic work skills such as problem solving, design, teambuilding, and personal responsibility. Related academic courses include humanities (a combination of language arts and U.S. history) and introduction to technology (applied physics). At the end of grade 10, most RSTA students select an internship (see below) or a vocational shop and take academic courses in the comprehensive school.

Work elements. A range of work-based learning opportunities has been developed. A job shadowing component is included in the grade 10 Pathways course. Students job shadow four times, once in each of the four occupational pathway areas. Students are expected to take on the responsibility of arranging their own experience, drawing from a bank of employers recruited by the school. RSTA also provides several internship programs that are open to all juniors and seniors in the high school. One-year positions are available in the areas of education, financial services, facilities management, and health careers/science. Students participate five days a week for half a day. This time includes an on-site seminar that combines English, social studies, and work-related themes. A new community service program — called Cambridge Service Corps — is open to all students in the school and provides an opportunity to organize and conduct a community-wide service project in connection with related course work.

Post-secondary elements. Agreements with Lesley College are being renegotiated to enable students participating in the education internship program to earn college credit (for Introduction to Teaching) for their course work in the internship seminar.

Changes/Issues Since 1992–93

- More academic instruction is provided within the RSTA "house" as additional integrated curricula are developed. RSTA now has seven academic teachers (compared with two teachers three years ago) within its house.

- A grade 10 Pathways program providing integrated instruction in workplace skills, critical thinking and problem-solving, English, social studies, applied physics, and in-depth exposure to four occupational areas has been developed and implemented.

- A wider range of work-based learning opportunities is available with opportunities for job shadowing in the grade 10 program, a new community service program, and growth of the internship program into new occupational areas. The internship program has expanded from two programs to a total of four as indicated above.

- RSTA's curricula innovations of using "vocational methods (hands-on, contextual learning) to teach academic content" are starting to spill over into the larger high school.

As discussed above, a half-day, full-year community problem-solving and service program, which incorporates language arts, social studies, and technical arts, has been implemented within the comprehensive school. RSTA's approaches have drawn interest from teachers throughout the high school and are influencing current discussions around creating systemic reforms.

- RSTA is beginning to form relationships with area elementary school teachers who are developing their own career exploration/school-to-work projects for students in elementary school grades. A summer institute is planned that will bring elementary and high school internship teachers together for the first time.

Professional and Career Experience (PaCE): Poudre R-1 School District Fort Collins, Colorado

Program Description

Fort Collins is a mostly white, middle-class community, with many small employers and several large ones, including Colorado State University, Hewlett-Packard, and Kodak. The Poudre R-1 School District has three comprehensive high schools with a combined enrollment of 3,600 students, and an alternative high school with 200 students. All tenth grade students are required to enroll in PaCE's semester-long introductory career exploration course (Critical Skills), and those who pass with a grade of C or better are eligible to participate in work-experience positions. Now that PaCE is required for all students, the program is no longer considered vocational (and is thus not eligible for district vocational funding); under site-based management, individual high schools pay for on-site PaCE coordinators and Critical Skills teachers out of their own school budgets, and the district supports an overall director. PaCE has also received some federal funding through Colorado's state implementation grant for continued development, and has applied for a school-to-work local partnership grant from the federal government.

School elements. The Critical Skills curriculum provides exposure to a wide range of careers and work-readiness skills, interpersonal and time management skills, the development of a career plan and job search portfolio, and instruction on budgeting and personal finances. As part of Critical Skills, students are also required to complete four hours of community service, research two careers in-depth, and complete a two-hour job shadowing exercise. The curriculum is continually updated to reflect new areas, with such activities as increased writing assignments, emphasis on study skills, and developing activities suited to different student learning styles.

Work elements. Students who complete Critical Skills with a grade of C or better are eligible to participate in job shadowing, volunteer experience, and paid or unpaid internships in grades 10 through 12. PaCE work experience has completely replaced co-operative learning positions, and most students progress toward paid work experience over time. (That is, students may begin by shadowing an employer and eventually be hired by that employer, or may intern with several different employers in grades 11 and 12.) With the help of school-based coordinators, students identify work placements and are interviewed by employers; if both the student and employer agree, the student begins the work experience. While participating in work experience, students are also required to simultaneously take a related academic or vocational course, and attend a weekly seminar led by a PaCE director to discuss work-related issues. Students who receive satisfactory ratings from their employers, complete the required related course, and attend the weekly seminars can earn up to 25 high school course credits for their placements.

Post-secondary elements. Fort Collins is home to Colorado State University and Front Range Community College. While no direct links currently exist between PaCE and these post-secondary institutions, district staff have close ties with post-secondary staff and have worked together to strengthen the district's vocational offerings.

Changes/Issues Since 1992–93

- PaCE, now in its sixth year of operation, is central to the district's school-to-work plan to offer career education to all students (K–12). The high school program is now required for all students district-wide, and a middle school program focused on career exploration has been piloted in several "feeder" schools, which send students to high school PaCE programs. An elementary school program focused on career awareness is under development.

- The content of some work-experience positions may have become more specific, especially in cases where students are trying to earn credit for required courses or in occupational areas where training must take place on the job (for example, with some high-tech employers).

- In a further demonstration of PaCE's widespread acceptance and institutionalization, students may now earn credit for core requirements from their PaCE experience. (Students formerly earned high school credit for work experience, but PaCE credit could be applied only toward elective requirements.) Now, PaCE coordinators and school counselors work with students and teachers to design work experiences (and extensive training plans) that meet the skill standards set in academic classes. This expanded use of PaCE credits is particularly enticing to students having trouble meeting core requirements and to their counselors as well. Post-secondary institutions accept these credits as verification that core high school requirements have been fulfilled.

Tech Prep Programs

Pickens County Tech Prep Program (Pickens County School District) Easley, South Carolina

Program Description

Pickens County is a largely rural area in northwestern South Carolina. The school district serves approximately 2,500 high school-level students at its four high schools and Career Center (which provides most of the vocational education for the district). The district has worked closely with the Partnership for Academic and Career Education (PACE) Consortium in developing and implementing tech prep innovations. The district has invested resources from its general fund and Carl Perkins funding in staff and curriculum development; PACE has also provided many resources in this area. South Carolina's 1994 school-to-work legislation, for which Pickens County School District was a model, has made additional resources available to the district in recent years.

School elements. Under its district-wide tech prep initiative, the Pickens County School District has completed its effort to replace high school courses in the "general education track" (that is, courses that are less demanding than the highly academic college preparatory and advanced placement courses) with tech prep applied academic courses. These courses differ substantially from traditional, lecture-style classes; they include co-operative learning methods and multiple instructional approaches, and use examples that simulate workplace activities to engage students in learning. There is no fixed sequence or minimum number of tech prep courses that students must take, although, increasingly, participating students are taking all tech prep courses for their core subjects. While the district is working toward offering an attractive tech prep "track" along with a college prep "track," students can — and do — take a mix of courses.

All four high schools in the district offer tech prep courses in math, English, and science for multiple grade levels. New tech prep course offerings are added each year. In response to the state's legislative requirement that the general education track be eliminated starting with the freshman class of September 1996, all high schools now have to offer a more uniform range of tech prep courses and will need to add them in additional subject areas. The district is also purchasing an individualized, computer-assisted learning system to help students who are not on grade level and are not quite ready for tech prep–level courses.

Other innovations include expanding career awareness activities for all students in grades K–12. Career exploration and relevant career examples are written into all new curricula (college prep as well as tech prep). Career planning portfolios — which record students' evolving interests, participation in career exploration activities, courses taken, and progress toward graduation — are in place. Parent involvement is strongly emphasized and encouraged through parent-child-counselor meetings and through the development of written materials to educate parents about the many educational and career options available to their children.

Work elements. In response to the state legislation's mandate that all students have the opportunity to be exposed to the workplace, middle and high schools have begun to develop some workplace and work-related activities (in addition to the existing youth apprenticeship program discussed below). Typically, opportunities are being developed in relation to specific courses at teachers' discretion. More job shadowing experiences are being offered (usually through vocational education and tech prep courses). Service learning opportunities are available through a civic responsibility course and co-op positions are offered in connection with some vocational education courses. More businesspeople are being brought to the schools through "career days" and special presentations.

Post-secondary elements. Articulation agreements have been developed between the high school and Tri-County Technical College for 58 specified technical college courses in 16 programs (both technical and academic). These agreements — which can require passing an exam, placing into a higher-level college course, getting a recommendation from the high school teacher, and/or demonstrating completed work — have not been used much by students. Further articulation agreements (sometimes referred to as "2 + 2 + 2") have been developed for specific programs that allow students who earn articulated credit from high school, and then apply the credit to the technical college, to transfer that (articulated) credit to specific four-year degree programs at Clemson University.

Changes/Issues Since 1992–93

- The district has increased the number and scope of tech prep courses available at all the

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high schools, and more students are enrolling in tech prep courses. Teacher support and interest in tech prep has been facilitated by the district's requirement that all math, English, and science teachers be trained in applied teaching methods — even if they are not currently teaching tech prep courses. (This requirement goes significantly beyond the state requirement that teachers of applied academic courses receive training in applied teaching techniques.) The training in applied instructional methods has helped the faculty better understand what tech prep is all about and developed an appreciation of the value of applied instructional approaches for all students; many teachers are now using applied techniques in all the courses they teach.

- The district is beginning to make a range of work-based learning activities available to all students.

- All the high schools have moved to block periods so that students take eight courses in 90-minute periods over two days (rather than 45 minutes for each of seven courses in a single day). This schedule change has had positive consequences for tech prep. First of all, the longer class time has made it easier for tech prep teachers to do a variety of hands-on activities within a class period. The ability to take additional courses each year (along with the introduction of sophomore-level introductory vocational courses) has enabled more students to follow up on their growing interest in technology — cultivated by tech prep courses — by attending the district's Career Center for vocational training. Enrollment at the Career Center grew from 350 in 1991 to 800 in 1996.

- In an effort to increase the low utilization of articulation agreements, Tri-County Technical College has designated school-to-work advisors for each of its major divisions. These individuals are going out to high schools to market the articulation agreements and advanced standing arrangements they have developed with Pickens County and other school districts.

Ben Davis High School
Wayne Township (Indianapolis), Indiana

Program Description

The Wayne Township School District in Indianapolis is an ethnically mixed, blue- and white-collar urbanized area. Ben Davis High School enrolls roughly 2,200 students in grades 10 through 12, and also serves as the area vocational high school for 11 surrounding school districts (each of which has one high school that may send students to Ben Davis to take vocational education classes). Ben Davis's tech prep program has grown steadily in the past three years, and now enrolls roughly 360 students who work with 21 teamed teachers. The program is entirely supported through district funding.

School elements. The tech prep program is designed to replace the school's "general track" with courses focusing on the applications of technology and hands-on instructional practices. Students in grades 11 and 12 take a required, structured set of courses in English, math, science, introduction to technology, and computer applications that are open only to tech prep students. Students in the tenth grade may take a sequence of "pre-tech" classes to prepare for the eleventh and twelfth grade program (see below). Tech prep classes are based on applications of industrial technology and use many hands-on,

problem solving, work-related problems that students tackle in groups. Tech prep is organized as a school-within-a-school in which students and teachers are grouped into teams, and each teacher team has a common planning period during which teachers meet together. About a third of students enrolled in tech prep also take vocational classes as electives in the eleventh and twelfth grades.

Work elements. Work internships are offered to twelfth grade tech prep students. Internships closely resemble co-op placements, with formal training agreements and regular workplace visits by the internship coordinator. In fact, tech prep students are encouraged to pursue co-op opportunities related to vocational classes; internships are intended to fill in where students are interested in nontraditional or more technical work placements that may not be available in other Ben Davis programs.

Post-secondary elements. The tech prep program has maintained clear articulation agreements with the area's community college, Indiana Vocational Technical College, in which students can earn up to nine credits for their high school tech prep coursework. All tech prep classes written with the same competencies as college prep classes are accepted by universities as high school credit, even if the subject matter is taught in an applied manner.

Changes/Issues Since 1992–93

- Since its state demonstration funding ended, Ben Davis's tech prep teachers and internship coordinator position have been fully funded by the Wayne Township School District. Operating within the "normal" school budget has meant that there is no longer a designated overall program coordinator; the internship coordinator works half-time and only with students and employers on securing internships for a limited number of tech prep students. In addition, teacher in-service (particularly industry exposure for new tech prep teachers) has been scaled back. School administrators would like to reinstate the coordinator position to help keep all teachers communicating, to reinforce the use of applied curricula, and to serve as an overall check on the system.

- Tech prep has expanded in the tenth and twelfth grades to meet student needs. A "pre-tech" program was created for students who do not meet tech prep's algebra entrance requirement. (Those students, who are mostly tenth graders, take tech prep algebra, U.S. history, and English together, and may then enter the core tech prep curriculum in the eleventh grade.) In addition, a third year of tech prep English was added to continue building students' communication skills, as was a third year of tech prep social studies (government) to help students meet graduation requirements.

- Tech prep graduates pursuing technical degrees sometimes prefer to enroll in two-year technology programs offered at Indiana University-Purdue University at Indianapolis (IUPUI), rather than at the area community college, which offers articulated credits for Ben Davis tech prep classes. Therefore, efforts are being made to develop articulation agreements between groups of schools rather than with a single post-secondary institution. Indiana has been divided into 14 regions for the purpose of distributing Carl Perkins funding, and secondary and post-secondary schools within each region are coming together to discuss broad articulation agreements.

Youth Apprenticeship Programs

Fox Cities Youth Apprenticeship
Appleton, Wisconsin

Program Description

The Fox Cities Youth Apprenticeship program is overseen by the Fox Cities Alliance for Education, a consortium of 11 area school districts, the Fox Valley Technical College, local employers, and the Fox Cities Chamber of Commerce. The program, which initially began as one of the pilot sites for Wisconsin's youth apprenticeship initiative, draws students from all 11 districts and served 48 students in the 1995–96 school year. The program is largely supported by the participating school districts, who pay a per-student fee for participating students and contribute to the Education for Employment Council, which helps to coordinate the program. Additional resources for curriculum development, mentor training, and new program development come from a federal school-to-work local partnership grant and foundation/corporate grants.

School elements. Students in grades 11 and 12 participate in the program, attending academic and technical classes at the Fox Valley Technical College two days a week and participating in workplace learning three days a week. Students, who leave their home high school, are instructed by technical college teachers in classes reserved only for youth apprentices (with the exception of the auto body and auto collision technical courses, which are taught by high school teachers at a participating high school). Competency-based technical college–level courses are used in math and science, and high school–level English and history courses that incorporate work-related themes have been developed for the program.

Work elements. The Wisconsin Department of Industry, Labor, and Human Relations has commissioned the development of competency-based curricula to guide technical instruction in the classroom and at the worksite for each occupational area in which youth apprenticeships are offered. The technical curricula in each area emphasizes giving students wide exposure to the industry and progressive development of occupation-specific skills. During their first year at the worksite, students rotate through different departments of participating employers so they can observe and gain instruction in several areas. In the second year, students focus in-depth on one or two areas and become more involved in production, working in positions that closely resemble those of regular employees. Apprentices earn a Certificate of Occupational Proficiency from the Department of Industry, Labor, and Human Relations after they successfully complete the program.

Post-secondary elements. The program has made a strong effort to connect students to post-secondary options and has been aggressive in educating college admissions staff about the unique educational experience the apprentices have had. Participating students receive technical college credit (as well as high school credit through a dual credit arrangement) for the college-level courses they take while in the program. In the area of printing, an individualized "transition" curriculum has been developed to enable printing youth apprenticeship graduates to complete an associate's degree in one calendar year from high school graduation.[3] Post-secondary connections in other areas are not as well developed. The Uni-

[3]Strong articulation agreements between the technical college and University of Wisconsin at Stout have enabled graduates with an associate's degree to enter a bachelor's degree program with junior-year status (meaning that the youth apprenticeship program has reduced the time it takes to earn a four-year degree by one full year).

versity of Wisconsin is piloting a new competency-based admissions system, but the pilot efforts are not in communities served directly by youth apprenticeship programs.

Changes/Issues Since 1992–93

- The program has grown from offering youth apprenticeships in just printing to a six-industry program: finance, insurance, auto technology and auto collision, health services, and printing. (Insurance and finance will be dropped next year and machining will be added.) This expansion has involved creating parallel program structures for each occupational area and has relied on continued state development of technical curricula. While a Youth Apprenticeship Policy Committee oversees the entire program, a Steering Committee has been created for each industry to shape and oversee the program in that area.

- Participating school superintendents and employers have a growing interest in building less intensive work-based experiences in an effort to reach more students. A youth internship program is being piloted this year in response to concerns about the continued small size and high costs of the youth apprenticeship program.

- The state-developed technical curricula call for highly structured, work-based learning experiences that provide students with exposure to a wide range of areas within the industry. While the curricula have been developed with significant employer input about the skills needed in the industry, it has been challenging for employers to put the curricula into place given the breadth of experiences they are asked to provide and the amount of time students are at the workplace. The detailed competency-based curriculum requires that some students be rotated to more than one employer in order to cover all areas, and limits the participation of smaller employers.

Metropolitan Vocational Center
Little Rock, Arkansas

Program Description

The Metropolitan Vocational Center is a regional vocational high school serving Little Rock and eight surrounding school districts. Metropolitan's students take academic classes at their area high school, and travel to Metropolitan for vocational courses. Enrollment at Metropolitan has decreased in the past three years, from approximately 700 to 400 students, mostly in grades 11 and 12. Students who have been enrolled at Metropolitan for at least one semester are eligible to participate in youth apprenticeship opportunities, where offered. The youth apprenticeship program receives annual funding from the state, which is mostly used to pay a program manager; vocational instructors are paid through regular vocational funds.

School elements. Youth apprenticeship opportunities are now available to students enrolled in vocational courses at Metropolitan in culinary arts, welding, computer-aided design, auto mechanics, and auto body. (Youth apprenticeships available in 1992–93 in heating, ventilation, and air conditioning — or HVAC — have been dropped, as have those in health occupations; health youth apprenticeships may

be re-introduced shortly.) The youth apprenticeship program provides paid internships coordinated and monitored by the program manager, and access to post-secondary training options, and may include supplemental material to vocational course offerings. Apprentices are also encouraged to take work-readiness classes focusing on problem-solving, teamwork, and coping skills, and applied math classes offered at Metropolitan. Youth apprentices continue to take all academic classes at their sending, or home, high schools, along with traditional vocational course offerings at Metropolitan.

Work elements. Most youth apprentices participate in work-based learning jobs during their second year at Metropolitan (usually the twelfth grade). The program manager works with students, their vocational instructors, and area employers to secure "high-tech, high-skill, high-paying" jobs for students whom instructors feel are ready to learn at the workplace. Apprentices' jobs resemble co-op positions, with training plans and regular visits by the program manager. Jobs are individualized to meet industry and student training needs, as well as class schedules: for some apprentices, structured internships may replace second-year vocational course work; for others, work-based learning may take place after school hours and supplement classroom learning.

Post-secondary elements. Articulation with post-secondary institutions or other post-high school training options (such as apprenticeship training, Ford Motor Company employee training programs, and so forth) is required by the state as a condition to receiving funding for youth apprenticeship programs. The program manager is also required to follow apprentices for two years after graduation to monitor post–high school enrollment and/or employment. Articulation has been more difficult to establish in some program areas than in others, but close professional ties between Metropolitan and area community colleges and universities (in which instructors teach at both institutions) has helped to strengthen connections to post-secondary options.

Changes/Issues Since 1992–93

- The requirement that all apprentices be enrolled at Metropolitan for at least one semester before entering the program, coupled with declining enrollments at the vocational center, have made it difficult to recruit large numbers of students for the youth apprenticeship program. Efforts to recruit students from area high schools to enroll in vocational offerings so they can then enroll in apprenticeships have had limited success, in part due to the availability of some vocational offerings at area high schools and lack of student interest in occupational areas targeted for apprenticeships (for example, HVAC). In addition, not all students enrolled in vocational classes at Metropolitan are able to participate in apprenticeship opportunities because of low achievement and low maturity levels.

- Employers interested in working with apprenticeship students have been actively involved in expanded student recruitment efforts. For example, the Chef's Association (whose members need trained employees) met with superintendents and administrators from the area's three major school districts to explain the program, hosted a dinner for all area high school counselors, and provided a brunch for area home economics teachers in an effort to convince these administrators and teachers to direct more interested students toward Metropolitan and the youth apprenticeship program in culinary arts.

- Low enrollment, lack of students who are academically and emotionally qualified to handle work-based apprenticeship positions, and resistance to change on the part of some vocational teachers seems to have perpetuated the perception that youth apprenticeships

are "add-ons" to some occupational areas, rather than an institutionalized part of the center's vocational offerings.

Pickens County Youth Apprenticeship Program (Pickens County School District) Easley, South Carolina

Program Description

The Pickens County Youth Apprenticeship Program is a three-year program, serving students in grade 12 and two post-secondary years. Twenty-nine students participated during the 1995–96 school year. (See the Pickens County Tech Prep Program description for background information on Pickens County School District.)

School elements. During the high school senior year, participating students take academic classes in their home high schools for half a day and start half-day vocational classes at the district's Career Center. (See "School Elements" under Pickens County Tech Prep Program for an overview of tech prep courses within the school district.) Work-based learning replaces all but one day of the vocational courses once students are placed in a youth apprenticeship position, which generally occurs some time between November and February. During the post-secondary years, most participating students attend regular classes at Tri-County Technical College. (For a few occupational areas, the partner post-secondary institutions are Greenville Technical College or Spartanburg Community College.)

Work elements. Youth apprentices are placed with participating firms for 20 hours a week for three years. Workplace competency guidelines, developed by secondary vocational and Tri-County Technical College instructors with employer input, have been created for each occupational area to guide students' activities at the workplace. The competencies — which include technical math, reading, communications, problem-solving, and teamwork skills — serve as a written record of what students have learned on the job and what they still need to work on. While the skills specified remain the same over the three years, students are expected to progress from observing an activity, to doing it on their own with supervision, to doing it unsupervised. Many employers offer opportunities for increasing specialization over time.

Post-secondary elements. The program incorporates two post-secondary years at the technical college level. As students make the transition to post-secondary institutions, the roles of coordinating the program and overseeing students transfers to the post-secondary staff. Participating students can get articulated credit upon entering Tri-County for both their course work and work-based learning. (See the discussion on Pickens County tech prep.) However, once they are at the college they do not get credit for working. Students mostly continue to work, and some participating employers provide tuition reimbursement benefits. However, the extent to which students' work is connected to and integrated with college course work varies. The college's newly designated school-to-work advisors are responsible for assuring that the students' workplace activities continue to offer learning opportunities and are related to their learning at college.

Changes/Issues Since 1992–93

- Since 1992–93, the Pickens County Youth Apprenticeship Program has increased the number of participating students and employers as it has expanded into new occupational

areas. In 1992–93 (the program's first year), there were four apprentices in the computer electronics field. Since that time, 60 students have started the program, and youth apprenticeship positions are now offered in auto mechanics, business management, industrial electricity, health occupations, machine tool technology, and graphic communications in addition to computer electronics.

- Mismatches between interested students and interested employers also appear to be constraining the size of the program. In some sectors, the program has interested employers, but no eligible students. However, in other occupational areas (especially health occupations, business management, and graphic communications), the program has been unable to find enough appropriate placements for all qualified students.

- The post-secondary component of the program has been further developed as specific college staff have been identified for program coordination responsibilities. However, at the post-secondary level, the students' work-based learning experiences are less directly connected to their studies, the workplace experiences may be less structured, and students do not receive credit for working. The program is also experiencing attrition at the post-secondary level; it appears that most of the students who leave the program do so because of changes in career interests or personal issues, but they remain in college.

Craftsmanship 2000
Tulsa, Oklahoma

Program Description

Craftsmanship 2000 is a metalworking youth apprenticeship program, serving students in the Tulsa School District and surrounding districts, that was launched and is run by a consortia of local employers and school officials housed under the Tulsa Chamber of Commerce. Roughly 33 students are enrolled in Craftsmanship 2000, and the Chamber, through its school-to-work organization, Career Partners, Inc. (CPI), has also started school-to-work initiatives focused on health, business, and transportation (with additional programs in international studies and telecommunications under development). Craftsmanship 2000 and other initiatives are funded primarily by employers, regular school funds, and a federal urban/rural school-to-work implementation grant.

School elements. Craftsmanship 2000 is now a three-year program that students enter in the eleventh grade. Academic classes are taken at the home high school in grades 11 and 12, and students pursue a rigorous, three-year sequence of applied vocational courses in metalworking at the Tulsa Technology Center (Tulsa Tech). Students will spend their third year in the program taking classes at Tulsa Tech and working with area employers, as well as completing a final project to demonstrate the skills mastered in the three-year program. The machining curriculum was developed by a Tulsa Tech curriculum specialist, with extensive input from Tulsa Tech machining instructors and employers, and is now used as a national model.

Work elements. All students receive in-plant training during the summers after the eleventh and twelfth grades, and during the school year in "grade 13." Students work with the same employer sponsor and worksite mentors throughout their stay in the program, and are expected to compete for full-time

positions with that employer after completing the program. Employers follow a specified training plan that covers general skills and allows for plant-specific training as well, and worksite mentors receive training from Chamber of Commerce staff on how to work effectively with students. Employers also pay approximately $14,000 for each student assigned to their company, which covers student wages for three years.

Post-secondary elements. Students may earn up to 25 credits at Tulsa Junior College after completing 12 credits at the college (about one semester). Similar articulation agreements are being developed as part of newer school-to-work initiatives.

Changes/Issues Since 1992–93

- In sum, Craftsmanship 2000 was condensed from a four- into a three-year program; academic classes are now taught at an area high school, which offers applied coursework; and employers' per-student contributions were greatly reduced. Factors behind these changes include difficulty in recruiting students for the four-year "pull-out" program, which required students to make a lengthy time commitment and to leave their home high school entirely; difficulty recruiting employers willing to pay a higher student stipend that would cover in-school and work time; resistance from principals and counselors to send students to Tulsa Tech for all academic and occupational instruction; and the high cost of running an entire academic and occupational program out of Tulsa Tech with low student enrollment.

- Career Partners, Inc., a new organization staffed by Chamber of Commerce employees, was formed to help implement and administer a variety of school-to-work initiatives in the Tulsa area. CPI brings together interested employers and school partners and has launched new school-to-work initiatives focused on the health, business, and transportation industries. Many of the new initiatives are built as schools-within-schools, which often enroll students who are in the earlier high school grades, and provide opportunities for students to engage in work-based learning.

- Across most of its school-to-work initiatives, CPI has found that summer academic and team-building activities, particularly between new teachers and students, are highly beneficial. Such activities "hook" students into the programs, re-energize and engage teachers, and help foster a family-like school-within-a-school atmosphere within the programs before they formally begin.

West Bend Youth Apprenticeship
West Bend, Wisconsin

Program Description

The West Bend Youth Apprenticeship program began as one of the pilot sites for Wisconsin's youth apprenticeship initiative. The program, which started in the two co-located high schools of the

West Bend School District,[4] has been expanded county-wide, with five school districts now participating. Thirty-three students participated in the youth apprenticeship program operating out of the original high schools in 1995–96 (five students came from other districts). Costs for program coordination and somewhat smaller class sizes are covered by district funds. A state grant of federal school-to-work money helps to support some of the technical instructors and a county-wide employer recruiter.

School elements. Participating students take both academic and technical classes with nonparticipating students in their home high school for half the day. The majority of youth apprentices take technical math and oral and personal skills (a technical college English course in written communication) as recommended by the program; many take a recommended college-level psychology course as well. Apprentices take technical courses in their specific occupational area, which are guided by the competency-based curricula commissioned by the Wisconsin Department of Industry, Labor and Human Relations.

Work elements. Students participate in work-based learning for half a day, five days a week. The structure of the experience and the curricula used to guide it are the same as described above for the Fox Cities youth apprenticeship program.

Post-secondary elements. Under Wisconsin's dual credit system, students can earn both high school and college credit for the same course. However, the local technical college, Moraine Park Technical College, accepts only dual/articulated credit for courses that are taught using the same curriculum used at the college. West Bend high schools arranged for oral and personal skills and a college psychology course to be taught at the high school. Most apprentices earn some dual credits by taking the English course; some take the psychology course as well. The local college has limited offerings in the occupational areas served by the youth apprenticeship program so there are few opportunities for building relationships. Health apprentices who earn a certified nursing assistant certificate can get college credit for that course work. An articulation agreement has been developed with Milwaukee Community College for up to 18 credits toward an associate's degree in printing/graphics.

Changes/Issues Since 1992–93

- The youth apprenticeship program that started in the West Bend high schools was expanded county-wide with the development of a county collaborative. Five school districts are now working together to some degree. The districts, with West Bend being the most experienced and taking the lead, work together to create new youth apprenticeship programs and serve students from multiple districts. Joint efforts are being undertaken in the areas of mentor training and employer recruitment.

- The program within the West Bend high schools has expanded the occupational areas it serves from printing only to add finance, insurance, health, and manufacturing. As with the program expansion in Fox Cities, this expansion has involved creating parallel program structures for each occupational area and has relied on continued state development of technical curricula.

- Availability of work-based learning slots has been an issue in expanding the program.

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[4]The two high schools, which have merged, are known as West Bend High Schools. They have one address but two different phone numbers (one for East High School and one for West High School).

There are currently more interested students than available work slots in the areas of printing and finance (and health positions are expected to be in big demand once a restructured program is implemented). The highly structured state-developed curricula are difficult for many employers — particularly smaller ones — to implement because they do not have the staffing to train more than a handful of students in all of the areas specified in the curricula or they simply do not operate in all the areas covered by the curricula. The breadth of the state youth apprenticeship curricula calls for a wider scope of training than employers typically have in place for their regular employees.

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Selected Publications on MDRC Projects

Education Reform

The School-to-Work Project

A study of innovative programs that help students make the transition from school to work or college.

The School-to-Work Transition and Youth Apprenticeship: Lessons from the U.S. Experience. 1993. Thomas Bailey, Donna Merritt.

Home-Grown Lessons: Innovative Programs Linking School and Work (Jossey-Bass Publishers). Book. 1995. Edward Pauly, Hilary Kopp, Joshua Haimson. Revised version of a 1994 MDRC report.

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Home-Grown Progress: The Evolution of Innovative School-to-Work Programs. 1997. Rachel Pedraza, Edward Pauly, Hilary Kopp.

The Career Academies Evaluation

A 10-site study of a promising approach to high school restructuring and the school-to-work transition.

Career Academies: Early Implementation Lessons from a 10-Site Evaluation. 1996. James Kemple, JoAnn Leah Rock.

Other Programs for Youth

The JOBSTART Demonstration

A test of a program combining education, training, support services, and job placement for very disadvantaged young high school dropouts.

JOBSTART: Final Report on a Program for School Dropouts. 1993. George Cave, Hans Bos, Fred Doolittle, Cyril Toussaint.

The Career Beginnings Evaluation

An evaluation of a program that seeks to increase college attendance and improve job quality among disadvantaged high school students.

Career Beginnings Impact Evaluation: Findings from a Program for Disadvantaged High School Students. 1990. George Cave, Janet Quint.

The Youth Incentive Entitlement Pilot Projects (YIEPP) Demonstration

A test of a school-conditioned job guarantee for low-income youth.

Lessons from a Job Guarantee: The Youth Incentive Entitlement Pilot Projects. Monograph. 1984. Judith Gueron.

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Programs for Teenage Parents on Welfare

The LEAP Evaluation

An evaluation of Ohio's Learning, Earning, and Parenting (LEAP) Program, which uses financial incentives to encourage teenage parents on welfare to stay in or return to school.

LEAP: Final Report on Ohio's Welfare Initiative to Improve School Attendance Among Teenage Parents. 1997. Johannes Bos,Veronica Fellerath.

The New Chance Demonstration

A test of a comprehensive program of services that seeks to improve the economic status and general well-being of a group of highly disadvantaged young women and their children.

Lives of Promise, Lives of Pain: Young Mothers After New Chance. Monograph. 1994. Janet Quint, Judith Musick, with Joyce Ladner.

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Parenting Behavior in a Sample of Young Single Mothers in Poverty: Results of the New Chance Observational Study. 1997. Martha Zaslow, Carolyn Eldred, editors.

Project Redirection

A test of a comprehensive program of services for pregnant and parenting teenagers.

The Challenge of Serving Teenage Mothers: Lessons from Project Redirection. Monograph. 1988. Denise Polit, Janet Quint, James Riccio.

The Community Service Projects

A test of a New York State teenage pregnancy prevention and services initiative.

The Community Service Projects: Final Report on a New York State Adolescent Pregnancy Prevention and Services Program. 1988. Cynthia Guy, Lawrence Bailis, David Palasits, Kay Sherwood.

Reforming Welfare

Books and Monographs

Reforming Welfare with Work (Ford Foundation). Monograph. 1987. Judith Gueron. A review of welfare-to-work initiatives in five states.

From Welfare to Work (Russell Sage Foundation). Book. 1991. Judith Gueron, Edward Pauly. A synthesis of research findings on the effectiveness of welfare-to-work programs. Chapter 1, which is the summary of the book, is also published separately by MDRC.

Five Years After: The Long-Term Effects of Welfare-to-Work Programs (Russell Sage Foundation). Book. 1995. Daniel Friedlander, Gary Burtless. An analysis of five-year follow-up data on four welfare-to-work programs.

After AFDC: Welfare-to-Work Choices and Challenges for States. Book. 1997. Dan Bloom. A summary and synthesis of lessons derived from studies of welfare reform programs.

ReWORKing Welfare: Technical Assistance for States and Localities

After AFDC: Welfare-to-Work Choices and Challenges for States. See under Books and Monographs.

Changing to a Work First Strategy: Lessons from Los Angeles County's GAIN Program for Welfare Recipients. 1997. Evan Weissman.

Work First: How to Implement an Employment-Focused Approach to Welfare Reform. 1997. Amy Brown.

Working Papers

Working Papers related to a specific project are listed under that project.

Learning from the Voices of Mothers: Single Mothers' Perceptions of the Trade-offs Between Welfare and Work. 1993. LaDonna Pavetti.

Unpaid Work Experience for Welfare Recipients: Findings and Lessons from MDRC Research. 1993. Thomas Brock, David Butler, David Long.

From Welfare to Work Among Lone Parents in Britain: Lessons for America. 1996. James Riccio.

Papers for Practitioners

Assessing JOBS Participants: Issues and Trade-offs. 1992. Patricia Auspos, Kay Sherwood.

Linking Welfare and Education: A Study of New Programs in Five States. 1992. Edward Pauly, David Long, Karin Martinson.

Improving the Productivity of JOBS Programs. 1993. Eugene Bardach.

Reports and Other Publications

The JOBS Evaluation

An evaluation of welfare-to-work programs operating under the Job Opportunities and Basic Skills Training (JOBS) provisions of the Family Support Act of 1988.

Adult Education for People on AFDC — A Synthesis of Research. (U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation [HHS, ASPE]). 1995. Edward Pauly.

Evaluating Two Welfare-to-Work Program Approaches: Two-Year Findings on the Labor Force Attachment and Human Capital Development Programs in Three Sites (HHS, ASPE). 1997. Gayle Hamilton, Thomas Brock, Mary Farrell, Daniel Friedlander, Kristen Harknett.

The Cross-State Study of Time-Limited Welfare

An examination of the implementation of some of the first state-initiated time-limited welfare programs.

Implementing Time-Limited Welfare: Early Experiences in Three States. 1995. Dan Bloom, David Butler.

The View from the Field: As Time Limits Approach, Welfare Recipients and Staff Talk About Their Attitudes and Expectations. 1997. Amy Brown, Dan Bloom, David Butler.

Florida's Family Transition Program

A study of Florida's time-limited welfare program.

The Family Transition Program: Implementation and Early Impacts of Florida's Initial Time-Limited Welfare Program. 1997. Dan Bloom, James Kemple, Robin Rogers-Dillon.

The Minnesota Family Investment Program (MFIP)

An evaluation of Minnesota's welfare reform initiative.

Making Welfare Work and Work Pay: Implementation and 18-Month Impacts of the Minnesota Family Investment Program. 1997. Cynthia Miller, Virginia Knox, Patricia Auspos, Jo Anna Hunter-Manns, Alan Orenstein.

Canada's Self-Sufficiency Project (SSP)

A test of the effectiveness of a temporary earnings supplement on the employment and welfare receipt of public assistance recipients. Reports on the Self-Sufficiency Project are available from: Social Research and Demonstration Corporation (SRDC), 275 Slater St., Suite 900, Ottawa, Ontario K1P 5H9, Canada. Tel.: 613-237-4311; Fax: 613-237-5045. The reports are also available from MDRC.

When Work Pays Better Than Welfare: A Summary of the Self-Sufficiency Project's Implementation, Focus Group, and Initial 18-Month Impact Reports (Social Research and Demonstration Corporation). 1996.

The GAIN Evaluation

An evaluation of California's Greater Avenues for Independence (GAIN) Program, the state's JOBS program.

GAIN: Basic Education in a Welfare-to-Work Program. 1994. Karin Martinson, Daniel Friedlander.

GAIN: Benefits, Costs, and Three-Year Impacts of a Welfare-to-Work Program. 1994. James Riccio, Daniel Friedlander, Stephen Freedman.

The Parents' Fair Share Demonstration

A demonstration aimed at reducing child poverty by increasing the job-holding, earnings, and child support payments of unemployed, noncustodial parents (usually fathers) of children receiving public assistance.

Matching Opportunities to Obligations: Lessons for Child Support Reform from the Parents' Fair Share Pilot Phase. 1994. Dan Bloom, Kay Sherwood.

The National Supported Work Demonstration

A test of a transitional work experience program for four disadvantaged groups.

Summary and Findings of the National Supported Work Demonstration. 1980. MDRC Board of Directors.

About MDRC

The Manpower Demonstration Research Corporation (MDRC) is a nonprofit social policy research organization founded in 1974 and located in New York City and San Francisco. Its mission is to design and rigorously field-test promising education and employment-related programs aimed at improving the well-being of disadvantaged adults and youth, and to provide policymakers and practitioners with reliable evidence on the effectiveness of social programs. Through this work, and its technical assistance to program administrators, MDRC seeks to enhance the quality of public policies and programs. MDRC actively disseminates the results of its research through its publications and through interchanges with a broad audience of policymakers and practitioners; state, local, and federal officials; program planners and operators; the funding community; educators; scholars; community and national organizations; the media; and the general public.

Over the past two decades — working in partnership with more than forty states, the federal government, scores of communities, and numerous private philanthropies — MDRC has developed and studied more than three dozen promising social policy initiatives.

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